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ECHOES OF AN INVISIBLE WORLD

MARSILIO FICINO AND FRANCESCO PATRIZI ON COSMIC ORDER AND MUSIC THEORY

JACOMIEN PRINS

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Echoes of an Invisible World

Marsilio Ficino and Francesco Patrizi on Cosmic Order and Music Theory

By

Jacomien Prins

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Preface

"Metaphysics is this strange way of thinking about 'something' that is pretty similar to nothing".[1] If this is true, the present book may well be summarized as "much ado about nothing". But it has not always been common sense to associate metaphysics with quasi-profound philosophizing about nothing. For Renaissance philosophers such as Marsilio Ficino (1433–1499) and Francesco Patrizi (1529–1597), reality, as we nowadays perceive it, was imaginary and deceptive, its perishable fabric being made of images and appearances. By contrast, ultimate reality, in their eyes, was an intelligible, everlasting realm beyond the senses, which could be glimpsed by the human mind only in special moments of enlightenment. Therefore, they dedicated a great deal of their time and energy to finding the key to this ultimate reality—that is, to obtaining knowledge of the 'harmony of the spheres'.

Of the complex and all-embracing philosophies of Ficino and Patrizi, those aspects that concern the elusive concept of world harmony are the most fascinating, as they combine a very demanding idealist metaphysics with earthly music as part of everyday life in the material world. This is where the true challenges lie for Pythagoreans and Platonists: how to discover the key to the secrets of the harmonic universe by using the standards of idealism, without denying the given?

By comparing Ficino's and Patrizi's conceptions of cosmic harmony, this book aims to provide insight into the transformation of the concept of perfect harmony against the backdrop of the rapidly changing music and science of Renaissance Italy. In doing so, it also aims to help meet the growing interest in the reception history of ancient harmonics by providing insight into how Ficino and Patrizi perform their Herculean task of reconciling the Pythagorean doctrine of the harmony of the spheres with the music and science of their own time. As the reader will discover in this book, they both do so by weaving intricate webs that relate their metaphysics to their music theories.

Throughout history, the music of the spheres has always been an excellent means of complementing and embellishing ordinary life. Precisely because no one has ever heard it or will ever hear it, the metaphor of inaudible music has always worked interactively with the subject for which it stands, evoking associations between different sets of ideas and thus producing new meanings. During the Italian Renaissance it played a significant role in the complex and

1 "Metafysica is die vreemde manier van denken over 'iets' dat bijzonder veel op niets leek". Patricia de Martelaere, *Verrassingen*, 2001, 71.

ambiguous process by which European culture divested itself of religious and esoteric traditions in natural philosophy and musical practice. But up until now, no one has understood this complex interaction precisely. And even now that the book is finished after years of research, and my name appears if one googles 'Ficino' or 'Patrizi' in combination with 'harmony', I must admit that the search for something as inaudible and invisible as their concepts of world harmony has proven to be inconclusive.

This book is based on a doctoral dissertation that was executed as a PhD project at the OGC (Research Institute for History and Culture) of the University of Utrecht. It owes much to those who assisted me during my doctoral research: my supervisors Michael Allen, Michael Fend, and Maarten Prak; and many other dear colleagues, including the residents of the KNIR (Royal Netherlands Institute in Rome) and Wolfson College, Oxford. I thank my former supervisors and a few other dedicated colleagues for carefully commenting on earlier versions of this book. For correcting my English, I am grateful to Ingrid Rowland and to Pamela Bruton, whose diligent and dedicated proofreading and copy-editing did much to make my writing clearer. I thank Brill's two anonymous readers, who wrote constructive and detailed reports far beyond the usual call of duty. My editor, Han van Ruler, and his assistants Rosanna Woensdregt and Wilma de Weert have throughout given the support and advice for which Brill as a publisher has become well known and highly respected. I claim sole responsibility for any remaining flaws and errors. Last, but most certainly not least, I want to thank those who supported me during this sometimes quite capricious intellectual adventure and gave me all the love anyone could possibly want.

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CHAPTER 1

Introduction

1.1 Nature and Scope of the Book

In his *L'amorosa filosofia* (*Philosophy of Love*; 1577), Francesco Patrizi (1529–1597) reports a remarkable banquet in Modena in October 1568, where Tarquinia Molza, a local gentlewoman, sang and played for the duke and his guests, including Patrizi, who claimed to have been in love with her.[1] This musical experience must have created such a deep and lasting impression on him that nine years later he dedicated a whole book to his love for her and her marvellous art of singing. The treatise provides compelling evidence of a late sixteenth-century musical practice seen through the aesthetic lens of an idealist. In so doing, it creates a representation of the musical performances of Tarquinia Molza, which were described by Patrizi as "the weakest echo of the harmony of the spheres" which "reaches human ears down here on Earth" and "enters only the souls of those whose ears are so purified that they derive a most sweet delight from it".[2] Although Patrizi's text, by its very nature as an ode to his muse Tarquinia, is not necessarily reliable, he does seem to have wanted to provide as accurate a record of her transporting performances as possible. But why did he choose to articulate his, at first sight, 'modern' musical experience in the archaic metaphors from the age-old tradition of the harmony of the spheres? Was it above all an attempt to imitate and possibly even surpass his famous predecessor Marsilio Ficino (1433–1499)?[3] To answer this question, in this book I will compare the concept of "echoes of an invisible world" in Patrizi's and Ficino's works. By comparing these philosophers' conceptions of cosmic order and music theory, I aim to provide insight into a major transformation of the doctrine of the harmony of the spheres that took place in Italy during the Renaissance. In addition to an analysis of their cosmological and musical thought, I also aspire to do more than illuminate the subject

1 For an introduction to Patrizi's philosophy, see Kristeller 1964, 110–126. For an intellectual biography, see Vasoli 1989.

2 *Della quale harmonia non perviene agli orecchi humani qui giuso più che una debolissima quasi echo. La quale entra negli animi . . . di . . . que'solamente che l'orecchie hanno alcun tanto purgate et ne gustano un diletto soavissimo*. Patrizi 1963, 71.

3 For an introduction to Ficino's philosophy, see Kristeller 1964, 37–53. For an intellectual biography, see Kristeller 1943.

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matter itself. I also aim at revealing the vital role played by Italian Renaissance humanism and natural philosophy in shaping and conditioning definitions and classifications of scholarly disciplines and musical practices which have persisted to the present.

In sharp contrast with Patrizi, whose at times awkward prose never scored high in any citation index, many of Ficino's discussions of the concept of world harmony became immensely popular. Presumably, they owed their best-seller status to their literary and suggestive qualities, combined with a certain ambiguity and vagueness, as a result of which they lend themselves quite well to identification and projection. Gary Tomlinson, for example, has made an informed guess about the meaning of the following music-therapeutic prescription in Ficino's *De triplici vita* (*Three Books on Life*; 1489), the famous self-help guide for scholars, which speaks of echoes of an invisible world as follows: "When at the right astrological hour you declaim aloud by singing and playing in the manners we have specified for the four [planetary] gods, they seem to be just about to answer you like an echo or like a string in a lute trembling to the vibration of another which has been similarly tuned".[4] Tomlinson (1993, 144) argues that "behind the doctrines of *De vita* stood a successful empirical practice. Ficino's songs, in other words, worked for him to channel astral influxes in appropriate, health-giving ways". But how can Tomlinson be so sure that Ficino had been able to put this rather elusive and obscure therapeutic prescription successfully into practice? Is it in principle methodologically feasible to provide evidence for the view that Ficino was in contact with the inaudible music of the spheres, and that his lost musical practice was a faithful echo of heavenly harmony? Would it not be more plausible to suppose that the opposite is true: that the character of Ficino's view of world harmony was entirely determined by its earthly imitations—that is, by his musical improvisations—which were presented in his philosophy as echoes of a kind of divine music?

Apparently, Ficino's and Patrizi's echoes of an invisible world are two variations on a theme which, following James Haar (1960, vi), I will only vaguely indicate at this stage as the Pythagorean-Platonic view of the universe as a harmonic creation. They both choose to put their experience with the cosmos, man, and the music of their time into words belonging to the complex tradition of the harmony of the spheres, which began with Pythagoras in the sixth century BCE and experienced its first peak in Plato's *Timaeus*. Presumably,

4 *Tu igitur horum quattuor unumquemque cantibus tibi suis conciliabis, praesertim si competentes cantibus sonos adhibeas; adeo ut cum eorum more opportune canendo et sonando clamaveris, responsuri protinus videantur vel instar echo, vel sicut corda quaedam in cithara tremens, quotiens vibratur altera temperata similiter*. Ficino 1989b, 360–361.

Ficino and Patrizi elect to work from the Pythagorean tradition because their experience, both with the natural world and with music, somehow transcends the limitations of their everyday sensory experience and language. Like most of Pythagoras's and Plato's followers, however, they interpret this particular conception of the interconnection between cosmic order and music theory along the lines of their own beliefs and theories, in order to make sense of it in their own time.

This book attempts to show how in Italy, across the span of one and a half centuries, the doctrine of the harmony of the spheres helped to shape Ficino's and Patrizi's perceptions of the world, man, and music. In focusing on their interpretations of the doctrine of world harmony, it aims at an analysis of how Renaissance cosmology and music theory apply reciprocal concepts, which are used to anchor their basic beliefs and to confer meaning on them. First of all, Ficino's and Patrizi's views on cosmic harmony are worthy of detailed study, because not only do they express their personal thoughts and beliefs, but they also serve as testimonies of many aspects of the experience of Renaissance philosophers and musicians in trying to bring order and meaning to their worlds. Furthermore, the views of both philosophers merit an in-depth analysis, because they not only reshaped the subject matter but also the relationships among scholarly disciplines and musical practices, and methods used in their study. As such, they are an excellent focus for reflections on important developments in the scholarly and musical worlds of Renaissance Italy.

This study also responds to the growing interest in the reception of the Pythagorean-Platonic intellectual tradition. As is well known, Pythagoreans and Platonists were preoccupied with numerical principles and their application not only to arithmetic but also to geometry, music, astronomy, philosophy, cosmology, theology, anthropology, psychology, medicine, and other fields. I will argue in this book that Pythagorean and Platonic harmonic theory was not passively rediscovered and uncritically adopted by Neopythagorean and Neoplatonic philosophers during the Italian Renaissance but, from the very beginning, adjusted to new intellectual and artistic contexts and sometimes even openly repudiated. I will outline the history of the reception of the Pythagorean doctrine of world harmony from the late fifteenth century, when it was rediscovered and rapidly came to be a major factor in the formulation of Ficino's philosophy, to the late sixteenth century, when Patrizi tried to defend it against the backdrop of the emerging new cosmological views and musical practices of his own time.

The subject of this book cannot be easily classified in a specific genre of philosophical, scientific, or music-theoretical writings. In a broad sense it is about the complex and ambiguous role of the doctrine of the harmony of

the spheres in the process by which European culture increasingly discarded religious and esoteric traditions in natural philosophy and musical practice. I hope to show that the Pythagorean and Platonic texts that are discussed in this book were not merely passive vehicles for the transmission of mathematical concepts to natural philosophers associated with the birth of science and the Scientific Revolution but were bearers of a great diversity of attitudes and values that proved instrumental in shaping philosophical, scientific, and musical culture in the Renaissance. In particular, I will argue that Ficino's and Patrizi's 'commentaries' on sources from the tradition of the harmony of the spheres articulated various ideas of what the universe, man, and music are and how they have to be treated scientifically, which cannot always be reduced to a unifying theory, let alone to a narrative of belief in scientific progress.

The frame chosen for the selected source readings is essentially motivated by certain neglected areas in the study of the Italian Renaissance reception of the doctrine of world harmony. During the Renaissance, many classical and medieval authorities were rediscovered and became available in print.[5] As a result, the conceptual stratification of discussions on cosmic harmony, already highly complex in antiquity and in the Middle Ages, tended to increase by orders of magnitude. To give a clear picture of the intricate ramifications and the multilayered development of the Renaissance debate on cosmic harmony, I have chosen to focus on Ficino's and Patrizi's views, because they participated in the most significant debates on the subject matter. They exemplify the important role that Italian Renaissance humanism and natural philosophy played in formulating new conceptions of the cosmos, man, and music, new views of their relationships, and new methods used in their study.

Widespread though ideas of world harmony may have been in Renaissance culture, Ficino's and Patrizi's imaginative attempts to explain the harmonic laws ordering both cosmos and music stand out because of their all-inclusiveness. For the same reason, their theories about the relationship between cosmic order and music theory become a compelling subject for research, which will further the debate of their philosophy in general. My choice of these two scholars, finally, is motivated by the fact that a selection of their partly disregarded primary sources provides us with an interesting perspective on the vital role of Italian Renaissance humanism and natural philosophy in the reception history of the concept of world harmony.

5 For the history of the discipline of music in the Renaissance, see, e.g., Burnett et al. 1991; Gozza 2000; Hirtler 1995; Judd 2000 and 2013; Moyer 1992; and Vendrix 2008.

1.2 The Tradition of the Harmony of the Spheres

For centuries in the Western world, the Pythagorean-Platonic doctrine of world harmony helped to shape the conceptual universe of philosophers, theologians, and practitioners in the sciences and humanities, as well as of composers, musicians, architects, poets, and visual artists. Legend has it that this tradition started with Pythagoras's discovery, as early as the sixth century BCE, that simple numerical ratios relate to consonant musical sounds. For Pythagoras and his school, this discovery meant that an immediately given sensible quality—namely, sound—corresponded exactly to measurements that could be expressed as simple numerical ratios, all of which adhered to the same pattern. Furthermore, the correspondence between sensible qualities and simple numerical ratios could be empirically demonstrated—for example, by means of a monochord, an instrument on which sounds produced by different lengths of strings could be compared. On the basis of this discovery, Western thinkers began to embrace the belief that, by extension, the whole cosmos could be explained in terms of the harmonic relationship between simple numerical ratios.

Within the tradition based on this belief it was common to bring cosmology and music theory together in a single view of the cosmos as a musical creation, and of music as an art with cosmological implications. As explained by James Haar (1973, 2007–2009), the Pythagorean doctrine of world harmony received a very precise musical and astronomical definition in Plato's *Timaeus*, thus developing from a vague metaphor into a scientific attempt to explain the principles ordering the cosmos. This attempt led to the first precise formulation in Western thought of the doctrine of the harmony of the spheres, a Pythagorean doctrine that postulates harmonious relationships among the planets, governed by their proportionate speeds of revolution and by their fixed distances from the Earth in a geocentric universe. In the *Timaeus* the creation of the World-Soul, a model for the physical universe, is accomplished through the use of Pythagorean ratios or proportions, resulting in the representation of the cosmos as a musical scale in which a specific tone (based on Pythagorean tuning principles) is assigned to every planet.[6] However, the Timaean cosmic scale is not actual music but the foundation for the science of harmonics. The doctrine of the harmony of the spheres is also found in the myth of Er, which concludes the *Republic*, in which Plato describes the universe as a set of concentric

6 For an early interpretation of the Timaean scale, see, e.g., Boeckh 1866. For the Pythagorean Plato, see McClain 1978. For Plato's mathematical imagination, see Brumbaugh 1954. For music in Plato's oeuvre, see Moutsopoulos 1959.

rings—planetary orbits. On the surface of each of these rings, a Siren sits singing, and the tones of all the Sirens together form a harmonious sound.

The influence of these two Platonic myths on Western thought has been great and long-lasting, despite the existence of competing traditions, such as the ones that are in line with Aristotle's rejection of a sonorous universe in favour of his own silent, frictionless spheres.[7] In fact, writing about Pythagorean-Platonic world harmony is a great challenge for Renaissance philosophers such as Ficino and Patrizi, as they have to defend their Neoplatonist theories against the dominant Aristotelian world view.

The extraordinary complexities and richness of Plato's accounts of world harmony lead Ficino and Patrizi to the surviving ancient, medieval, and contemporary literature on Pythagorean and Platonic cosmology and music theory in order to explain the quite elusive doctrine of world harmony in further detail and to relate it to the music and scholarship of their own time. The sheer complexity and variety of the sources from the tradition of the harmony of the spheres, combined with their many inconsistencies, vaguenesses, and flaws, however, make it extremely difficult for Ficino and Patrizi to formulate a definitive philosophy of world harmony. In this book I will argue that the true challenge for them as Neoplatonic scholars lies in discovering the secret harmonic master plan of Creation by using the standards of idealism without denying the given of both physical nature and musical practice. Ficino and Patrizi, moreover, creatively exploit the elusiveness of the doctrine of world harmony to solve traditional interpretative difficulties and to bridge the ideal and the given.

1.3 *Status Quaestionis*

In recent decades, the scholarly attitude among historians of philosophy and musicology towards some of the interdisciplinary and rather eclectic Renaissance traditions has changed. In 1949 Herbert Butterfield famously judged that the Scientific Revolution "outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes".[8] From a dismissive assessment among such historians of science and philosophy, according to which Renaissance philosophy constitutes a phase of intellectual impasse or even decline between the summit of rationality

7 For the reception of the doctrine of the harmony of the spheres, see, e.g., Cristiani et al. 2007; Godwin 1987, 1993; Haar 1961; Haase 1969; Handschin 1926–1927, 1950; von Jan 1893; Leoni 1988; Schavernoch 1981; Schmidt 1974; Somfai 2002; Spitzer 1963; and Teeuwen 2002.

8 Butterfield 1949, 7.

of the great philosophical systems of classical Greece and the emergence of Cartesian philosophy, an attitude has developed that is more appreciative of the riches and philosophical sophistication of the philosophy of this particular period. There is a growing awareness not only of the inventive restatement of traditional knowledge by Renaissance scholars but also of the extent to which their philosophy has shaped the development of subsequent periods in Western philosophy, science, music theory, and aesthetics.[9] One of the results of this changing appraisal has been an explosive expansion of the number of translations, handbooks, sourcebooks, monographs, and articles on the interdisciplinary reception history of Plato's *Timaeus*.[10] Yet the connection between philosophy and music in the Renaissance reception of theories about world harmony is still somehow ignored. By focusing on this particular theme, this book aims to fill a gap in the reception history of the *Timaeus*, which was indicated by Thomas Leinkauf (2005a, 375) in an introductory text on the subject.

In reference to Ficino's philosophy, one need only compare the bibliography of five pages in Paul O. Kristeller's (1943, 413–417) in-depth intellectual biography with Teodoro Katinis's (2000, 101–136) most recent extensive bibliography in the journal *Accademia*, which is updated annually. Furthermore, in reference to Patrizi's philosophy, one need only compare the bibliography of five pages in Benjamin Brickman's (1941, 76–81) pioneering analysis of Patrizi's philosophy of nature with Frederick Purnell's (2004, 155–178) most recent vast bibliography in the online *Stanford Encyclopedia of Philosophy*.

As for Ficino's *Compendium in Timaeum* (*Timaeus* commentary, 1484–1496), more and more publications appear on different topics regarding the commentary, a tendency which will hopefully increase even more with the publication of the critical edition and translation by the author of the present book.[11] As to Patrizi's philosophy, we can only hope that the pioneering edition of *Della poetica* (*Poetics*; 1586) by Danilo Aguzzi-Barbagli (1969–1971) and of *L'amorosa filosofia* (*Philosophy of Love*; 1577) by John Charles Nelson (1963) will inspire a new generation of scholars to publish (critical) translations of these sources as well as a critical edition and translation of the *Nova de universis philosophia* (*New Philosophy of the Universe*; 1591), which are necessary to further research

9 Hankins 2005, 405.

10 For the medieval, Renaissance, and early modern reception of the *Timaeus*, see, e.g., Dutton 1997; Leinkauf 2005, 213–451; Neschke-Hentschke 2000, 141–233 and, for a "Bibliographie", xl–xlii; and Reydam-Schils 2003, 183–266.

11 My critical edition and translation of Ficino's *Timaeus* commentary is scheduled to be published in the I Tatti Renaissance Library Series in 2015–2016.

into the question of how Italian Renaissance humanism played a role in shaping and conditioning scholarly disciplines and musical practices.

Until a few decades ago, as noted by Anne Moyer (1992, 1), mainstream musicology followed in the footsteps of Charles Burney, who wrote in the late eighteenth century: "during the sixteenth century and a great part of the next, many of the most eminent musical theorists of Italy employed their time in subtle divisions of the scale, and visionary pursuits after the ancient Greek genera. . . . These vain enquiries certainly impeded the progress of modern Music; for hardly a single tract or treatise was presented to the public, that was not crowded with circles, segments of circles, diagrams, divisions, sub-divisions, commas, modes, genera, species, and technical terms drawn from Greek writers, and the now unintelligible and useless jargon of Boethius."[12] But just like historians of philosophy, historians of musicology have shifted from disparaging Renaissance music philosophy as too remote from individual Renaissance musical compositions and demonstrable music theory to a greater appreciation of the cultural and philosophical traditions which grant meaning to these scores and theories, as well as of the extent to which they can be helpful for modern reconstructions of early music practices.

In her *Musica Scientia: Musical Scholarship in the Italian Renaissance* (1992), Moyer makes a great attempt to clarify these "vain enquiries" by reconstructing some of the rules for reading sixteenth-century music-theoretical and -philosophical treatises, which somehow seem to have been lost for quite a long time.[13] She is right in pointing out (1992, 2) that given the fact that music had not been at the heart of the curricula of early humanists in Italy,

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12 Burney 1935, 2: 136.

13 Modern scholarship on Italian Renaissance musical thought as an integral part of the history of ideas, however, dates back some seventy years, starting with articles by Edward Lowinsky (1941 and 1954), Paul O. Kristeller (1947), and Daniel P. Walker (1941–1942), who returned to the subject several times (1978, 1985, and 1989). Among musicologists who have addressed issues of Renaissance musical thought, Claude V. Palisca's (1968, 1985, 1989, 1994, and 2006) work is of great importance, especially his investigation of the (dis) harmonies of the spheres in Renaissance musical thought (1985, 161–190; and 2006, 13–28). Palisca and Walker have disagreed over several issues, particularly Palisca's characterization of the musical thought of the later sixteenth century as a shift from Platonism to Aristotelianism; in his most recent work, posthumously published (2006), Palisca qualified but did not abandon this analysis. On the basis of my study of Francesco Patrizi's musical thought, just like Anne Moyer (1992), I have tended toward Walker's side of the debate while retaining some elements of Palisca's description. For the musical performance of Italian Renaissance music, see also Nino Pirrotta's (1984) and Ian Fenlon's (2002) work.

to a certain extent it is ineffective to look to Renaissance humanism's attitude towards philosophy, literature, and the visual arts for similarities and guidance in understanding the development of musical thought and writing. Neither did the field of music theory resemble these humanist disciplines in the influence of classical models, because it was only in the later sixteenth century that a few fragments of ancient musical compositions were rediscovered. Nevertheless, there is ample evidence that music, especially as an intellectual discipline and a propaedeutic subject for studies such as (natural) philosophy and theology, interested many scholars by the late fifteenth century and continued to do so for more than a century onwards. Even though Moyer manages to reconstruct many pieces of the puzzle of Italian Renaissance music theory, for historians interested in the relationship between music, cosmology and (natural) philosophy, the subject has remained attractive, because some important pieces are still missing.

My first goal is to restore some of those missing pieces, so as to study musical thought in its connection with philosophy and cosmology. It is an irony of history that precisely because scholars such as Patrizi reformulated the concept of world harmony successfully, from a subject whose theoretical basis rested among the mathematical disciplines of the quadrivium to one studied in both natural philosophical terms and the metaphorical, poetical and rhetorical terms belonging to the trivium, the thought of earlier scholars such as Ficino on the subject is nowadays quite hard to understand. In this process of reformulation, Patrizi divided musical knowledge into two parts, distinguishing the science of sounding bodies (later known as acoustics) from the art of music. Furthermore, he and his colleagues were able to convince later generations of scholars that this new set of demarcations and definitions was true, natural, and universal.[14] Despite seminal books such as James Haar (1961), Charles Burnett, Michael Fend, and Penelope Gouk (1991), Anne Moyer (1992), Paolo Gozza (2000), Suzannah Clark and Alexander Rehding (2001) and Philippe Vendrix (2008), the intellectual implications of music's earlier placement as a branch of mathematics are therefore still too often ignored.

The reformulation of traditional definitions and classifications helps explain the difficulties of later readers in making sense of these Renaissance philosophical, cosmological and musical texts. A great deal of Ficino's and Patrizi's work on world harmony seems to consist largely of now-obscure technical terms drawn from ancient philosophy and music theory, geometric diagrams, and long discussions of philosophical problems and technical details, which often seem unimportant to the modern reader. Thus, comparing Ficino's and

14 That this also holds for Patrizi's contemporaries is demonstrated in Moyer 1992, 3–4.

Patrizi's conceptions of world harmony is an excellent way to demonstrate why these problems and details were of the utmost importance for them. Yet a reconstruction of an important transformation in the tradition of the harmony of the spheres is feasible only when one takes into account their views of various disciplines such as theology, philosophy, cosmology, anthropology, music theory, and aesthetics.

What still has never been explained is why the ancient doctrine of the harmony of the spheres appealed to Ficino and Patrizi. At the end of the fifteenth century, it was Ficino's search for answers to new questions about cosmology, music, and harmonics and its study that spurred his interest in ancient theories of music as a branch of quadrivial mathematics. At the same time this search provided an impetus to move away from medieval theories about music as a quadrivial discipline, a tendency which was continued by Patrizi. Most of the book concentrates on why Ficino and Patrizi posed new questions about the nature of the cosmos and music and disagreed over old questions and answers to them; the book, moreover, also explores some of the implications of their new approach to the concept of world harmony.

In the last decades of the fifteenth century, Ficino's new translation of and commentary on Plato's *Timaeus* and many other ancient texts touching on the subject of cosmic harmony marked the beginning of change. He was attracted to these texts for several reasons. He hoped to find solutions to many questions regarding the structure of the cosmos, man, and music in a better understanding of ancient treatises on world harmony. Moreover, he sought to reconcile what he found on harmony and music theory in these treatises with the musical practice of his own time. He was most interested in Pythagorean musical proportions as the source of universal order. But above all he was interested in reviving the styles of ancient Greek music as much as possible, with the goal of recapturing its fabled emotional impact on the listener. Yet while working on his *Timaeus* commentary, he discovered that rather than providing solutions these treatises led to many new problems, because their doctrine was sometimes impossible to reconcile with common beliefs about the cosmos and music.

Although much of the initial impetus for change in the doctrine of world harmony arose from translations made by Ficino and by his contemporaries and followers in the late fifteenth and early sixteenth centuries, they are not, by themselves, responsible for the subsequent debates and study, which we encounter, for example, in the philosophy of Patrizi. As Moyer (1992, 5) has argued, most obvious is the great lag in time between the introduction of these sources and the radical transformation of cosmological and musical thought. Just as important as the discovery of new sources and new translations were

the ways in which humanistic methods were adapted to subjects such as cosmology, anthropology, and music theory.

Careful work in philology and exegesis and distinct new interpretative strategies altered the ways that ancient texts were understood, the interrelationships they were thought to have, and the kinds of authority they commanded. At the same time, no matter how much importance was given to ancient texts, (natural) philosophy, cosmology, and music theory were not simply subfields of Renaissance textual criticism. Music's common definition as a field between pure mathematics and natural philosophy encouraged both Ficino and Patrizi—even though the latter was a vehement anti-Aristotelian thinker—to try to apply the investigative rules of Aristotelian natural philosophy to musical studies. Thus, music did not simply undergo a transition from Scholastic mathematics to humanist art; it was also—as pointed out by Michael Fend (1991), Anne Moyer (1992), and Daniel Chua (2001)—increasingly studied as a physical, natural phenomenon.

In addition to explanations of world harmony, cosmos, and music in written sources, for both Ficino and Patrizi music as part of the physical world was also very important, be it in the form of sound being discussed as a physical phenomenon or with respect to musical compositions and performance. The changes in the study and interpretation of these phenomena are dealt with in this book as highly significant and as closely related to the changes in the interpretation of relevant texts. Many of these changes were about how mathematics was applied to the description and analysis of sound as a physical phenomenon and had, in turn, an effect (still not entirely understood) on scientific changes associated with the Scientific Revolution.[15] In their ambition to address the subject of world harmony, then, Ficino and Patrizi had to find a way to balance written sources from learned traditions with an emerging new empirical scholarly approach to develop and sustain their arguments.

To answer my research question, I have chosen to examine the writing of Ficino and Patrizi, whose philosophies mark the beginning and the end of an important transformation that took place in the doctrine of world harmony in Italy between 1484, when the first edition of Ficino's *Timaeus* commentary, which was loaded with Pythagorean numbers, ratios, and proportions, was published, and 1591, when Patrizi's *Nova de universis philosophia*, in which Pythagorean music theory has almost completely disappeared, appeared in print. In doing so I aim at further developing Moyer's (1992, 7) view on musical

15 On the history of music as a mathematical discipline, see, e.g., Hirtler 1995; Gozza 2000; and Vendrix 2008. On the importance of musical scholarship to the early connections between physical phenomena and mathematical analysis, see Rose 1975.

scholarship in the Renaissance, who has acknowledged that the great cosmologists using harmonic models merit separate study.

In contrast with Moyer, however, I believe that the harmonic models of philosophers such as Ficino and Patrizi are less distinct from the musical scholarship she studied. Moyer, for example, does not deal with Ficino in her book because his writings had already been examined by Daniel P. Walker and also, in her view, they lack any direct influence on late fifteenth-, and sixteenth-century musical thought. I will argue, however, that Ficino's *Timaeus* commentary is an excellent point of departure to study the transformation which took place in conceptions of world harmony—including their link with musical thought and practice—during the Italian Renaissance.[16] In choosing this approach it must be feasible to provide a missing piece of the puzzle of Renaissance thought on the relationship between cosmic order and music theory, because not only did Walker never examine the music philosophy of Ficino's *Timaeus* commentary in any detail, but recent studies have also demonstrated that Ficino's influence on late fifteenth- sixteenth-, and seventeenth-century musical thought was greater than has previously been assumed.[17] Above all, a comparison between Ficino's and Patrizi's conceptions of world harmony will be an excellent focus for reflections on the precise nature of the transformation in cosmological and musical scholarship that took place in Italy during the Renaissance.

Though nobody has studied and compared Ficino's and Patrizi's theories of world harmony in detail before, this is not to deny the abundance or quality of contemporary academic research on a wide range of themes in Ficino's and Patrizi's philosophy that touch indirectly on the subject matter of this book. The list is too long to include in its entirety, but James Haar's *Musica Mundana: Variations on a Pythagorean Theme*, especially his short but brilliant analysis of Ficino's theory of world harmony therein (1961, 343–362), cannot remain unmentioned as the founding study for the realization of this book.[18]

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16 For her view on Patrizi's musical thought, see Moyer 1992, 235–241.

17 For the reception history of Ficino's musical thought, see, e.g., Ehrmann 1991.

18 This first part of this book owes much to Paul O. Kristeller (1943) as well as to the books and articles of Michael Allen (e.g., 1994) and to James Hankins (esp. 1990). In addition, Alexandre Etienne's unpublished dissertation on Ficino's *Timaeus* commentary (1998) provided me not only with a point of reference for the transcriptions of quotations from that text but also with a great deal of valuable background information. In addition, as regards Ficino's musical thought, the first part of the book builds on the work of Daniel P. Walker (1958) and Gary Tomlinson (1993). The second part builds on Benjamin Brickman 1941, which has been the work par excellence to consult for Patrizi's philosophy of nature. In addition, Cesare Vasoli's research from the 1950s onwards introduced me to many aspects of Patrizi's complex philosophy, as did various books and articles written by Maria

Surprisingly, Ficino's and Patrizi's theories of world harmony themselves have never been studied profoundly by the specialists mentioned in this chapter, despite the fact that, as I will show, grasping the differences in their notions of world harmony is crucial for a proper understanding of the disciplines of philosophy, cosmology, anthropology, and music theory in general.

1.4 Methodology

In this book I will discuss an important chapter in the history of the Pythagorean-Platonic doctrine of the harmony of the spheres, which in a particularly illuminating way reflects some of the most important intellectual debates of the times. In the course of this discussion, Ficino's ideas of cosmic order and music theory as given in his *Timaeus* commentary (1484–1496) will be compared with those of Patrizi as presented in his *Nova de universis philosophia* (1591), *L'amorosa filosofia* (1577), and *Della poetica* (1586). I hope that my choice of these texts—which have not been studied previously from this perspective—will give the reader a good indication of the changes in method, approach, and interpretation of the concept of world harmony that took place in Italy during the Renaissance.

I will discuss Ficino's and Patrizi's philosophies mainly from the perspective of their theoretical considerations pertaining to the study of the presupposed interaction between cosmology and music theory. I will, moreover, attempt to reconstruct the philosophical foundations of their cosmologies and their music theories, and the close reading and interpretation of the philosophical and musicological texts will be subordinate to that aim.

In attempting to determine the relationship between their conceptions of world harmony, I will take Ficino's direct influence on Patrizi as a point of departure.[19] Fortunately, Patrizi's writing bears witness to a general improvement in the use of quotations which emerged over the course of the sixteenth century, since he quotes sources with greater accuracy and cites them with greater precision. Nonetheless, simply establishing Patrizi's use of Ficino's work is insufficient to establish continuity and change in their conceptions of world harmony. Hence, this strategy must be supplemented with other

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Muccillo. In addition, the second part of the book builds on the work of Danilo Aguzzi-Barbagli (1983) and Claude V. Palisca (1985, 402–405, 412–418; and 1994, 55–56, 408–409), who were among the first to study Patrizi's music theory in detail.

19 As a model for the study of Ficino's direct influence on Patrizi, Muccillo 1986 has been an important source.

methodological tools. Understanding not just how the concept of world harmony changed during the Italian Renaissance, but also why, can only come from exploring such broader issues as the methods and purposes of studying world harmony, the types of argumentative evidence and authorities that Ficino and Patrizi in their distinct intellectual milieus held to validate an argument, and their explicit and implicit assumptions about the nature of the disciplines they were working in.

In attempting to uncover these deeper layers of their cosmological and musical thought, which go far beyond direct quotation, and inspired by James Haar's (1961) approach, I will deal with Ficino's and Patrizi's conceptions of world harmony as two musical enigma-variations, of which the theme will emerge only as the reconstruction of Ficino's and Patrizi's imaginative harmonic universes proceeds.[20] Their views of what in the Introduction of this book can only be vaguely indicated as 'echoes of an invisible world' are taken as especially instructive examples of the intellectual preoccupations and achievements of the late fifteenth and sixteenth centuries, as examples both of how this Pythagorean-Platonic conception was transmitted and of the content of their own views of cosmic harmony. Furthermore, their texts record changes in the theory of world harmony, which in themselves are a good indication of the scholarship and epistemological standards of the late fifteenth and sixteenth centuries.

The subject matter of this book presents some problems, which will be briefly discussed here. To identify (Neo)Pythagorean and (Neo)Platonic influence in the philosophy of Ficino and Patrizi, we must be aware of what was known or perceived at the time about the vast research area treated in this book. In order to analyse this state of knowledge, we must deal not only with Plato's *Timaeus* and the sources that carried on the Pythagorean tradition of world harmony but also with other intellectual traditions. Hence, establishing even the basics of this research has required a quite intensive and laborious study of hitherto largely unexplored primary sources, as a result of which the resulting book is far from complete. In its incompleteness, however, it hopes to

20 In addition to James Haar, my methodology is indebted to an article by Edward Lowinsky (1941) in which he postulated that physical and musical space experienced similar transformations during the Renaissance. In addition, it is inspired by Simeon K. Heninger, who, motivated by a realization that much late medieval and Renaissance literature was written by and for people imbued with the Pythagorean notion of belonging to a harmonious universe inherited from antiquity, published a pair of near-encyclopaedic accounts of the Pythagorean world view as it was manifested in Renaissance poetry (1974, 1977). Furthermore, Suzannah Clark's and Alexander Rehding's (2001) analysis of the relationship between music theory and natural order (mostly in later periods in the history of music) helped to shape the methodological frame of this book.

further the debate on Renaissance conceptions of world harmony and the vital role they played in shaping and conditioning scholarly disciplines and musical practices so that a completer picture of the subject will be achieved.

During the process of writing this book, from the beginning I encountered another serious problem that all scholars of esoteric and religious theories face: 'echoes of an invisible world' come from a world which is—at least partly—hidden from the everyday senses of hearing and seeing, not only from our modern ears and eyes but even from those of Ficino and Patrizi. Thus, as the source of their ideas about world harmony, they could only adduce the authoritative treatises from the tradition of the harmony of the spheres, as well, of course, as their own perception of these treatises and the phenomenon under study. Therefore, besides attempting to show a major transformation in the tradition of the harmony of the spheres, this book also aims at offering a contribution to the debate on the question of how to distinguish between esoteric and exoteric knowledge, both as historical subject matter and as a problematic area within contemporary methodology.

To avoid the problems enumerated above, I have chosen to deal loosely with Ficino's and Patrizi's concepts of world harmony as hybrid concepts that consist of different mixtures of exoteric and esoteric elements. These concepts, as in Siegfried Leo Spitzer's (1963, 2) book on world harmony and William Eamon's (1994, 351) book on the secrets of nature, work interactively with the subject for which they stand, evoking associations between different sets of ideas and thus producing new meanings. In the theories of both Renaissance philosophers, world harmony functions partly as a kind of epistemological secret, which, in the words of Eamon (1994, 11), was a given in the order of the cosmos and, as such, was permanently and fundamentally unknowable. Yet at the same time, fully in line with the spirit associated with Renaissance science, both Ficino and Patrizi had the ambition to reveal the secrets of the universe and to share them publicly with a large audience. Comparing their different concepts of world harmony will manifest how the rediscovery of ancient sources and the emergence of a new empirical attitude toward reality prompted new questions about the doctrine and new answers to old questions, which took the tradition of the harmony of the spheres on a path from magical secrets to the public science associated with the Scientific Revolution.

To clarify Ficino's and Patrizi's interpretations of world harmony, which are full of what was described by Burney as the "now unintelligible and useless jargon of Boethius", it is necessary but not always sufficient to reconstruct the rules for reading and interpreting their cosmological and music-theoretical treatises.[21] In order to makes sense of how ideas about the universe as a whole

21 Burney 1935, 2: 136.

and the musical comma as one of its smallest parts interacted in the thought of both protagonists of this book, I use Max Weber's *Die rationalen und soziologischen Grundlagen der Musik* (1924) to put the subject matter in the wider methodological perspective of music history as a series of successive stages which can be characterized in terms of their rational foundations.[22] His theory of tuning and temperament as an important part of the rational foundations of a musical culture, moreover, will help to evaluate Ficino's and Patrizi's claims about both the musical or harmonic underpinnings of the cosmos and the cosmological range of music from a contemporary perspective.

At the heart of Weber's uncompleted treatise on decisive turning points in musical history is the idea that the development of capitalism in the Western world entails a corresponding increase in the rationalization of social structures to the development of musical materials and instruments. As explained by Konrad Boehmer in the *Grove Music Online* Weber ascribes the development of the diatonic tonal system to a historical process of increasing rationalization, represented in Europe chiefly by the middle classes. In addition, he argues that especially during the Renaissance, the materials of music are progressively purged of all the ingredients appropriate to it under feudal conditions: musical materials and idioms are increasingly restricted to functional elements. Melismata and microtonic intervals, found in ancient and medieval music, are swept away by diatonic principles, which become the basis of a functional harmony.

The history of Western music, especially of its tuning and temperament, from the Middle Ages onwards is unique, because it took the musical interval of a fifth in terms of its ratios, and not, as elsewhere, the musical interval of a fourth in terms of its mutual distances, as its point of departure.[23] In ancient Greece as in other 'non-Western' civilizations, the musical interval of the fourth was customarily filled with notes chosen in view of their respective distances between, for example, the tones C and F, which were chosen on the

22 This book (translated in 1958 under the title *The Rational and Social Foundations of Music*), in fact, is not a 'normal' music history but more a reconstruction of more or less intertwined 'archaeological' layers of cosmological and musical thought. It is about the historical a priori that grounds knowledge and its discourses and thus represents the condition of their possibility within a particular epoch, acknowledging that several rational or social foundations may coexist and interact at the same time. As such, the transformation described in this book might also have been described in terms of Michel Foucault's epistemes—or in terms of Thomas Kuhn's paradigms—but I have chosen to use Weber's concept of 'rational foundations' of music as a point of departure, because as technical terms they fit music and harmonics as a historical subject matter best.

23 Weber 1958, 51–65.

basis of melodic, and not of harmonic, requirements. Quite unlike this pattern, by means of Pythagorean ratios (2:1-octave, 2:3-fifth, and 4:3-fourth), but expanding this group of privileged consonances by the consonances with the numbers 5 and 6 in their numerical definition, music theorists in medieval Europe chose to divide the fifth with the ratio 2:3, thus producing the major third with the ratio 4:5 and the minor third with the ratio 5:6.[24] In Weber's view, this arithmetical division of the fifth proved in due time to be one of the decisive steps towards a rationalized music governed in the first place by harmonic considerations and rooted in the triad—the tonal harmony which became the very foundation of Western music after the Renaissance.

But these developments in tuning and temperament are a necessary yet not sufficient condition for a thoroughgoing rationalization. During the course of history, music's irrational and emotive force accompanies the process of increasing rationalization. Therefore, it can be seen as a counterpoint or countermovement interfering with the one-sided view of music's history as always increasing levels of rationalization.[25] In addition, Weber describes Western music history in terms of the paradox that the art form which par excellence is capable of affecting the human soul finds itself circumscribed by rigorous rules imposed by elementary mathematics. Furthermore, he conceives of music history as a dynamic process between antithetic cognitive and emotive musical powers: rationalization and the disenchantment of music it involves are paired with a counteracting movement to defend emotional expressiveness and to re-enchant music.

In Weber's view, it were specifically "the great musical experimenters of the Renaissance period [who] created [a new view of music] in their tremendous rational striving for discovery", which was developed for the purpose of giving musical form to affect, passion, or emotion.[26] He was, moreover, convinced that the difference between ancient and medieval music and Renaissance music lay not in the impulse to artistic expression but rather in the technical means of expression. The technical innovation of these Renaissance experimenters,

24 Weber 1958, 13–15, 51–53.

25 As Braun notes (1994, 5ff.), Weber's theory of the increasing rationalization of musical materials within European culture quickly drew criticism from scholars who accused him of promoting a one-sided view of music's rational aspects, at the expense of confronting music's irrational and emotional expressive elements. In this criticism, however, it has largely gone unnoticed that Weber's theory about increasing rationalization is coupled with, as noted by Braun (1994, 7), his ideas about music as an irrational and emotive force that centrally marks what music means in the life of a human being.

26 Weber 1922 (ed. 1949), resp. 484, 31.

moreover, consisted of the way in which their new aesthetics of expressive music was paired with the emerging development of tonal harmony and not with the restoration of ancient Greek systems of tuning and temperament, which they aimed to revivify.

From Weber's perspective on music history, we can now argue that it is precisely in the late fifteenth and sixteenth centuries that scholars started to express a certain awareness of the fact that music was subject to a relentless process of disenchantment: the cultic melodies that had once enchanted the world were being modernized and turned into an efficient means of musical production.[27] Accordingly, Ficino's reformulation of the doctrine of world harmony will be dealt with in this book as an attempt to rediscover the stereotyped magical formulae of ancient times with the purpose of re-enchanting music in such a way that it would be capable of influencing higher cosmic powers again.

Weber juxtaposes this ancient magical musical culture with a modern secular musical culture. While music was an integral part of a religious concept of universal order in ancient magical music culture, the picture changes completely in early modern culture. In this period the aesthetic realm emancipates itself from magical, religious, and scientific thinking, as a result of which music has to be re-enchanted with a new form of secular magic or religion in order to preserve its cosmological range.[28]

Whereas Weber only summarily explained that at the end of the sixteenth century new ideas and practices of tuning and temperament began to desensitize the ears of musicians and their audiences with a "dulling effect" and shackled music in "dragging chains",[29] I will deal with Patrizi's reformulation of the doctrine of world harmony from a more neutral historiographical point of view to illustrate how music was re-enchanted by using the metaphor of world harmony to evoke associations with earlier conceptions of the doctrine.

Ultimately, I use Weber's view of music history above all to demonstrate how and why ideas about world harmony which for Ficino had their rational foundation in the mathematical disciplines of the quadrivium were transformed in order to suit the rational foundations of newly emerging ideas about

27 For Weber's view of 'disenchantment', see Weber 1917, 155. For his description of early cultural levels of human civilization in which music appears as a magical device to serve cultic (music used to influence gods and demons) or medicinal ends, see Weber 1958, 40ff.; and 1989, 221.

28 Weber 1989, 222.

29 Weber 1958, 102–103, quoted in Chua 1999, 14.

the cosmos, tuning and temperament, which were in line with the rhetorical arts of the trivium.[30]

In sum, against the backdrop of Weber's methodological frame, I will argue that the changes in the tradition of the harmony of the spheres discussed in this book can be explained in terms of an increasing rationalization of musical materials which brought disenchantment and consequently an end to the age-old link between cosmic order and music theory. However, I will also show that the very same metaphor of the harmony of the spheres was effectively used to re-enchant the world.

1.5 Structure of the Book

The first part of this book, chapters 2 and 3, discusses the conception of world harmony in Ficino's *Timaeus* commentary in the light of the main controversies in cosmological and music-theoretical thought of the late fifteenth century. It argues that Ficino's interpretation, while building on the work of many predecessors and contemporaries, is a careful adjusting of the Platonic dialogue to a late fifteenth-century Neoplatonic framework. The second part, chapters 4 and 5, analyses Patrizi's interpretation of the concept of cosmic harmony as an attempt to make sense of the concept on the frontier of the geocentric cosmos and the heliocentric universe, that is, in the context of the two competing world systems of the sixteenth century. I will argue that while Ficino's attempt to align the doctrine of world harmony with Renaissance cosmology and music theory led to one of its most powerful statements, Patrizi, over a century later, was compelled to do his utmost to continue discussing the cosmos in the traditional terms of Pythagorean harmonics and music as an art with a cosmological range.

Chapter 2 will show that Ficino's conception of world harmony is inspired above all by neo-Pythagorean thought in sources from late antiquity. Pythagorean music in late antiquity became a science, which was adopted and interpreted by middle Platonic and Neoplatonic philosophers like Calcidius and Proclus in their influential *Timaeus* commentaries. These treatises deal with concepts that are discursive, scientifically developed projections of truths about numerical relationships, truths that pre-exist in the human soul as innate and constitutive of its very nature. Such numerical ratios may find expression in audible sounds and in instruments. Whereas his ancient predecessors

30 In this aspect of my methodological approach, I am further developing a thesis of Daniel K.L. Chua (1999, 12–22; and 2001).

believed that such sounds may remind us of a musical knowledge innate in us but are not themselves the objects of Pythagorean music, Ficino reinterprets their Pythagorean science so that sounds in earthly music become an important part of his philosophy of cosmic harmony.

Chapter 3 will demonstrate that Ficino conceives of intellectual Pythagorean music as a way for men to look at themselves. In his view, this music becomes a form of self-knowledge—that is, an approach to the structure of the human soul. The Neoplatonic conception of Pythagorean music, as rediscovered by Ficino, refers not only to the way in which this music's objects might be conceived but also to the method which might characterize it. In Ficino's thought, music occupies an important place in philosophical education. This educational purpose of music is often referred to in the context of a Platonic vision of the descent of a soul into a human body. Music in the service of philosophy, in this conception, is able to assist the soul in its return from this world to a transcendent world. Philosophy, in general and in its various branches, becomes a method for the soul to attain this goal. Wisdom is seen not only as a purely cognitive activity or state but also as a practical virtue involving other parts of the human mind as well. I will argue that this view of wisdom explains why the art of making music or listening to music, with its direct appeal to the soul, is raised to a far higher place in Ficino's philosophy than in that of many of his illustrious predecessors.

One of my main conclusions regarding Ficino's conception of world harmony is that, to a greater extent than his predecessors, he is interested in the continuity between the sensible and the intelligible realm and, therefore, in the continuity between earthly and heavenly or planetary music. By bridging both realms, his theory reaches a certain all-inclusiveness which those of his predecessors lacked, but at the same time, it becomes more vulnerable to criticism.

Chapter 4 contains an analysis of Patrizi's notion of cosmic harmony in the context of his philosophy of nature. I will show that Patrizi, when he was writing about the philosophy of nature, found himself in a rather difficult position. Classical antiquity preserved two main theories about the constitution of the cosmos: that of Plato, adopted by Ficino, and that of Aristotle, the dominant view during the Renaissance. In sharp contrast with Plato, Aristotle avoided the Pythagorean musical symbolism which had led to the claim that 'the whole heaven is a harmony and a number' and abandoned the notion of the harmony of the spheres altogether. As a scientific alternative, in *De caelo* (*On the Heavens*) II.9 Aristotle argued in favour of a universe consisting of silent, frictionless spheres.

In this chapter I will study the way in which Patrizi aspires to re-establish Platonic cosmology and natural philosophy entirely without Aristotle. In particular, I will investigate how Patrizi uses ideas originating from the tradition of the harmony of the spheres to combat Aristotelian cosmology. In addition, I will try to answer the question of whether, and to what extent, Patrizi's defence of the Pythagorean doctrine of world harmony played a role in the development of the modern scientific cosmology associated with the Scientific Revolution.

Chapter 5 will demonstrate that Patrizi has an entirely different conception of the relationship between music and the soul than Ficino, despite the fact that they both use an identical terminology derived from the tradition of the harmony of the spheres. I will argue that Patrizi again found himself in a rather uncomfortable position regarding this topic. Classical antiquity preserved two main theories on the constitution of the soul. The first, ontologically musical, had its origins in the narration of the creation of the World-Soul in Plato's *Timaeus*. Ficino bases his investigations on this theory, in which music plays a role in the moral education of a soul preparatory to its access to the first stage of a philosophical education. In imitation of Ficino, Patrizi uses this model to explain how divinely ordered music can act on the passions, mastering them and ordering the soul. But Patrizi uses this theory in an entirely different way than his predecessor to explain how music can be a means by which human reason can make the transition from theoretical knowledge of the physical world to metaphysics, the highest level of theoretical knowledge and virtue, in which the soul gains a grasp of the transcendent divine harmonic principles of its own nature and of the world.

I will argue that in Patrizi's Neoplatonic explanation of the relationship between music and the soul, traces can be found of the second ancient model of the soul, which was based on Aristotle's *De anima* (*On the Soul*) and which provides him with a better scientific foundation for a psychological theory of knowledge. In addition, I will demonstrate that in order to conflate both models of the soul into an all-inclusive explanation of the relationship between music and the mind, Patrizi has to transform the Pythagorean-Platonic musical view of the mind-body relationship which lies at the heart of the doctrine of the harmony of the spheres. As we will see, this leads to rather different conclusions about what music is and does than the ones presented by Ficino.

One of my main conclusions regarding Patrizi's conception of cosmic harmony is that, like Ficino, he is interested in the continuity between the sensible and the intelligible realm. In sharp contrast with his predecessor, however, he deconstructs the belief in the literal existence of a music of the spheres

that can be imitated in earthly music. Nevertheless, his view of the universe is firmly anchored in theories about world harmony. Furthermore, as an alternative interpretation of the literal conception of the doctrine of the harmony of the spheres, Patrizi offers a metaphoric reading of the effect of music on the soul, in which moral education is mixed with pleasure, especially the pleasure of being exposed to the musical sublime.

Now that we have been introduced to the main issues of debate concerning Ficino's and Patrizi's conceptions of world harmony, we are ready to enter their world. Knowing that both, albeit in entirely different ways, envisaged the cosmos as a world lyre which is eternally tuned by its creator, I will follow Haar's (1960, vi) example and now try to make 'audible' some of its music.

PART 1

Marsilio Ficino (*1433–1499*)

CHAPTER 2

The Universe as a Musical Creation

2.1 Introduction

At the Ecumenical Council of the Roman Catholic Church held at Ferrara and Florence in 1438–1445, the appearance of the great Byzantine scholar Gemisthus Pletho made such a deep impression on Cosimo de' Medici that he decided to establish a centre of Greek studies in Florence.[1] In 1462 Cosimo selected Marsilio Ficino (1433–1499), the son of his court physician, to chair the loosely organized group of scholars which later generations have referred to as the Platonic Academy. From the very moment that Ficino took up this position, one of his major concerns was the study of Plato, especially his *Timaeus*.

Remarks on the connection of cosmic order to music theory can be found in nearly all of Ficino's writings, but the most systematic exposition of his thought on the subject is in his *Compendium in Timaeum* (*Timaeus* commentary, 1484–1496), a large work which seems, at first sight, to carry on, unaware of the intervening centuries, the *Timaeus* commentary tradition of Calcidius and Proclus.[2] As one of the very few philosopher-musicians of the fifteenth century able to confront the interpretative difficulties of the Pythagorean harmonic theory included in the Timaean narrative of the creation of the world, Ficino

1 Haar 1961, 343.

2 Ficino was the first to translate Plato's *Timaeus* into Latin in its entirety. The production of his *Timaeus* commentary was a lifelong process. The first version was originally published in 1484 in Ficino's great *Platonis Opera Omnia* translation. After the 1491-edition, the final version of Ficino's *Timaeus* commentary appeared in his 1496 *Commentarium in Platonem*, which were then republished in the various editions of Ficino's *Opera Omnia*, of which the 1576 edition was a reprint. Furthermore, his study of Plato's *Timaeus* left its traces in many of his other writings. Hereafter, Ficino's *Compendium in Timaeum* will be abbreviated as *Compendium* in the text and as *CiT* in the notes. Throughout, moreover, I have adhered to Ficino's system of Roman numeral notation, in which IIII is used instead of IV and VIIII instead of IX. For the details of these editions, see Allen 1987, 402–404. For a discussion of the nature and title of Ficino's *Compendium*, see Leinkauf 2005a, 363–364, esp. n. 1. For quotations of Plato's *Timaeus* in Ficino's *Theologia Platonica* (hereafter abbreviated in the notes as *TP*), see the "Cumulative Index of Sources" in Allen's English edition of book VI of the *Platonic Theology* (2006, 364–365); and for quotations from Proclus's *In Platonis Timaeum Commentarii* (hereafter abbreviated as *In Tim.*), see Allen 2006, 370–371. For an introduction to Ficino's *Compendium*, see Allen 1987, 2003; and Etienne 2000.

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became the leading theoretician of the animistic metaphysics it presents—and hence of the vision of the cosmos as a musical creation corresponding to it.

Ficino's vision of the cosmos as a musical creation belongs to a period in history in which many scholars still conceived of the world as a metaphysical or supernatural whole. It is remarkable, as Leinkauf (2005a, 381) points out, that for Ficino the appeal of the *Timaeus* lay in the very theological components that are the most remote from modern interpretations of the universe. In order to grasp Ficino's theory concerning the connection between cosmic order and music theory, in this chapter I will focus on his ideas about ultimate reality—that is, on what he considered to be the components of reality. Ficino's lifelong endeavour to formulate a definitive theory of world harmony consists principally in revealing the ingredients of this ultimate reality and defining the interrelations between them. At first sight Ficino's *Compendium* seems to imitate the structure of Proclus's *Timaeus* commentary. After a preface, Ficino presents an analysis of the ultimate principles underlying the whole world—that is, the metaphysical, as well as the physical, world.[3] This explanation is followed by an analysis of the world's structure in terms of the four mathematical disciplines, the quadrivium: arithmetic, geometry, music, and astronomy. Presumably, he borrowed this explanatory structure from authors such as Theon of Smyrna and Calcidius.

Ficino works on a number of parallel tracks within the exegesis of the first part of the *Timaeus*. Following Proclus, he analyses Plato's procedure as comparable to geometry in the sense that certain starting points or principles are assumed, on the basis of which the nature and causes of the universe can be found.[4] Right from the start of the discussion of the ultimate principles of the world, however, it becomes clear that Ficino experiences difficulties in matching innovative contemporary cosmological and music-theoretical thought with the traditional views expressed in the sources he consults. His commentary, moreover, testifies that parts of the Pythagorean doctrine of world harmony, as handed down by Plato and his ancient and medieval commentators, are incomprehensible to him.

Ficino's interpretative strategies to update the content of Plato's *Timaeus* manifest themselves right from the beginning of his discussion of the First Cause of the world. The role of world harmony and its First Cause in Ficino's *Compendium* is complex, as we might expect of so inclusive a concept. However,

3 For the influence of Proclus's *In Tim.* on Ficino's *Compendium*, see Zerbino 1997, Etienne 1998, 127–131; and Megna 2003.

4 Leinkauf 2005a, 368.

there are a few important component parts and principles to be distinguished. First of all, Ficino uses the concept of world harmony to indicate the way in which the biblical God, whom he equates with the Timaean Demiurge, organized the endless variety of the world into a systematic arrangement.[5] His use of this concept, moreover, implies not only order but also beauty. God is the First Cause of the world's order and beauty, and therefore, the notions of regularity and elegance are integral to Ficino's vision of the cosmos as a musical creation. Hence, cosmic harmony clearly refers to an organic whole which incorporates all the parts of the world, including man and his music, in a single scheme that is both orderly and beautiful.[6] World harmony as an organic whole operates on both the conceptual level, as the universal plan in the Mind of God, and the material level, as a physical system controlling sense-perceived nature.[7]

One of the thorniest questions to answer for Ficino as a student of Plato is to what extent and how the ever-changing and unreliable world of sense perception and earthly music can itself be an object of scientific knowledge. This chapter is a study of the answer given to that question by Ficino in his *Timaeus* commentary. Following Plato, Ficino firmly believes that musical sounds are an expression of number and that their ratios can be objectively judged to be harmonious or not.[8] Consequently, music is given an important place in his philosophy of nature because it is supposed to be capable of translating the world of sense perception and perishable things in nature into concepts from the imperishable intelligible world of pure concept.

By 1462 the young Ficino had already written the first version of his *Timaeus* commentary, but before turning to the project of translating all the dialogues of Plato with accompanying commentaries for his Florentine patron Cosimo de' Medici, he had begun to work on the translation of several other Greek sources. The Orphic hymns, for example, he not only translated but also sought to revivify by singing them to his own accompaniment on the lyre.[9] The results of his reconstruction of ancient musical practices are incorporated in the music-theoretical speculations of his *Compendium*.

Cosmic order, music theory, and musical practice are closely related in Ficino's thought. The way in which these three elements are intertwined in the later

5 Allen 1987.

6 Chua 2001, 18.

7 For the role of *mens* and *necessitas* in Ficino's *Compendium*, see Lautner 2004.

8 For Plato's philosophy of music, see Moutsopoulos 1959. For his mathematics and harmonics, see Heath 1921.

9 Kristeller 1943, 97, 153; and Walker 1958, 19.

versions of his *Compendium* gives his remarks on cosmic harmony a unique character. A connection between planetary harmony and astrological and magical beliefs and practices was already implicit in early Pythagorean thought, as well as in the writings of Alexandrian Neoplatonists such as Plotinus and Proclus, but later on this connection was condemned by some of the church fathers and caused suspicion among many medieval Christian scholars who wrote from the biblical perspective of the cosmos as a harmonic Creation.[10] Ficino's open adherence to this body of thought and his development of it within the context of contemporary ideas about cosmic order and music theory give his view of the cosmos as a musical Creation a contemporary tone even where he intends to be entirely concerned with Plato's ideas about world harmony.[11] The analysis of the characteristics of this tone will be the focus of this chapter.

Because the notion of a musical cosmos is central to the thought of Ficino's *Compendium*, he deals in great detail with the cosmogonic myth of the *Timaeus*, especially with its elements of harmony and ratio.[12] The philosophy of a harmonically ordered cosmos in Plato's *Timaeus* still provides, as it had for many of his predecessors, the matrix for Ficino's account of a physical world already undergoing radical reconceptualization at the end of the fifteenth century.[13] Transformations and innovations in the conception of the physical world and the scientific method of its study, however, are often presented in Ficino's commentary as rediscoveries of eternal cosmological truths. The complex and obscure Pythagorean doctrine of the harmony of the spheres is presented as one of these truths, which—presumably precisely because of its elusiveness—provides Ficino with an ideal model for intriguing and innovative cosmological and music-theoretical speculation. I argue in this chapter that in conferring new or additional meaning on traditional concepts and in updating traditional

10 For the reception of the Timaean cosmogonic myth in ancient sources, see Baltes 1976–1978. For Plotinus as a reader of Plato, see Charrue 1978. For music in the philosophy of late antiquity, see O'Meara 1989 and 2005, 131–147. For Proclus's philosophy of music, see also Moutsopoulos 2004.

11 Haar 1961, 344.

12 The major part of Ficino's *Compendium* (XXVIII–XXXVI, as well as many of the "Distinctiones" at the end of the treatise) is dedicated to the myth of the Creation of the World-Soul at *Timaeus* 35b–36d, especially to the passage in which Plato explains its harmonic structure. For a detailed analysis of the passage on the division of the World-Soul into harmonic intervals (*Tim.* 35b–36b), see Handschin 1950; and Haar 1961, 1–70. For an introduction to Ficino's Florentine Neoplatonist interpretation of this passage, see Haar 1961, 343–361. For an introduction to the theory of harmonic ratios and proportions, see, e.g., Blasius 2002, 27–45.

13 Allen 2003, 238–239.

concepts to fit the scientific and musical demands of the late fifteenth century, Ficino starts to bring about a transformation in the traditional understanding of the relationship between cosmic order and music theory.

In the huge part of Ficino's *Compendium* dealing with the Timaean cosmogonic narrative, special attention is given to the harmonic design according to which the Demiurge in the *Timaeus* made the planetary circles, or spheres (*Tim.* 35b–36b). Plato envisioned these planetary spheres as one of the basic ingredients of the cosmos, which were created out of a long band of World-Soul-stuff, marked off by the intervals of the Pythagorean musical scale (*musica mundana*). In the tradition of the harmony of the spheres, this Pythagorean scale also came to represent the closest connection of the orderly cosmos to man as a microcosm (*musica humana*), as well as to ordered musical sound (*musica instrumentalis*).[14] Whereas Calcidius and Proclus in their *Timaeus* commentaries had paid no attention whatsoever to the place of man and his terrestrial music in the grand musical scheme of the cosmos, I will argue that this becomes the main focus of Ficino's *Compendium*. Yet although the Florentine is convinced that the key to both the secrets of the universe and efficacious earthly music can certainly be found in *Tim.* 35b–36b, just like his famous predecessors he struggles to explicate this passage in its entirety.

Since the Pythagorean musical scale, as presented in the Timaean cosmogonic narrative, is still the dominant idea of the Pythagorean-Platonic complex of ideas about world harmony presented in Ficino's *Compendium*, the emphasis of this chapter will be on his interpretation of this particular passage. Ficino's *Compendium* will be read as a mirror of his own time, through which we are able to identify elements of intellectual debates and knowledge which play a role in his solution to certain interpretative problems in this notoriously difficult passage.

A large class of analogies touching less directly on music as ordered sound but focusing on the central idea of the Pythagorean musical scale presented in the *Timaeus* was developed in antiquity and the Middle Ages. These related harmonic analogies predominantly deal with Ficino's conceptualization of the relationship between earthly and heavenly things in his 'musical' philosophy of nature. His main belief in this area of thought is traditional: namely, that the pure, mathematically determined nature of celestial harmony is imitated on Earth in a more or less corrupted form. Ficino envisages such earthly phenomena as the change of seasons, the tides of the sea, the direction of winds,

14 The categories of *musica mundana, humana,* and *instrumentalis* are first enumerated in Boethius's *Fundamentals of Music* 1.2. See Boethius 1989, 9–10. For an introduction to the music philosophy of Boethius, see Schrade 1933.

and the growth of trees, plants, and flowers as directly related to the heavens.[15] This chapter, however, will consider these phenomena only if they enter in a significant way into Ficino's theory of cosmic harmony.

In sum, in this chapter I present an in-depth explanation of Ficino's concept of *musica mundana* (world harmony) and its intimate connection with *musica instrumentalis* (earthly music), and I show that his cosmology and philosophy of nature are part of an all-embracing religious view of the cosmos as a harmonic Creation. Because Ficino's vision of the universe as a musical Creation is a part of his main philosophical project, it will be studied in the second and third section of this chapter against the backdrop of his ambition to formulate a Christian defence against heterodox tendencies in the dominant Christian-Aristotelian body of ideas in the academic world of his time.[16]

Moreover, in the fourth and fifth section of this chapter I demonstrate how Ficino in his *Compendium* conceives of the philosophy of nature as a science, albeit a hypothetical one, which takes the four quadrivial disciplines—arithmetic, geometry, music, and astronomy—as its methodological paradigm. I also offer an interpretation of how Ficino's view of the way in which the mathematically determined nature of celestial harmony is imitated in nature on Earth is related to what is later called the mathematization of physics. In doing so, I try to avoid retelling the story from the restrictive perspective of the birth of modern science associated with the Scientific Revolution: that is to say that I try to avoid the habit of thought which assumes that the mathematization of physics was already present in a rudimentary form in Ficino's philosophy of nature or that because it was not yet present in his mathematical view of the cosmos, it was irrelevant for the intertwined history of philosophy and science. In addition, in chapter 3 I will discuss Ficino's epoch-making discourse of *musica humana* (music of the human body and soul), which, thanks to his translation of and commentary on the second half of the *Timaeus*, was also articulated into a coherent agenda for innovative research around the world from the sixteenth century onwards.

2.2 The *Timaeus* as a Source of Perennial Harmonic Wisdom

2.2.1 Prisca Theologia

At first sight it may come as a surprise that Ficino based his theological philosophy of nature on the *Timaeus*, which in his time was considered to be an incomplete and poetic account of the Creation of the cosmos, when he

15 Ficino 1989b, 32.

16 Ingegno 1988, 237–239, 274–285.

could also study the detailed explications of the biblical Creation story by the church fathers.[17] To dispel any suspicion about this preference for a pagan text, Ficino argues that Pythagoras, Timaeus, and Plato had also received a kind of divine revelation about the harmonic structure of the cosmos, which contained information about the world that was not included in the Bible.[18] Therefore, their philosophy can profitably be studied in the context of a theological philosophy of nature. Following this line of thought, Pythagorean and Platonic ideas about cosmic harmony are looked upon as complementary to biblical truth.

In addition, Ficino chooses to write his *Compendium* from the perspective of a *prisca theologia*, because this narrative framework enables him to reconcile Christian and Platonic beliefs with certain well-established Aristotelian cosmological beliefs.[19] From a modern perspective, moreover, the use of this narrative framework can also very well be considered an interpretative strategy to deal with those areas where Aristotelianism and Christianity differ. Such areas include convictions about the Creation of the world, the cause of the perfection and harmony of the world, the properties and qualities of celestial bodies, and the explanation of their movements and the cause of these.[20] While the Aristotelian tradition deals with these topics from a perspective that accepts the mortality of the soul, the unity of the intellect, and an astrological determinism which regards the individual person as well as the whole cosmos as transient phenomena, bound by astronomical cycles, Ficino prefers to address them from the antithetical Neoplatonic-Christian point of view. Yet as we will see below, he upholds Aristotelian cosmological belief, especially where it satisfies his curiosity concerning physical nature.

In his *Compendium*, Ficino employs the historiographic narrative of a *prisca theologia* to anchor his belief in a musical universe and to confer meaning on his music-theoretical, as well as cosmological, concepts.[21] The *prisca theologia*

17 Allen 1987 (1995), 409.

18 Ficino still believed in the authenticity of Timaeus Locrus's *De natura mundi et animae* (*On the Nature of the World and the Soul*), which he believed to be an important source for Plato's *Timaeus*; in fact, it was written in reaction to Plato's *Timaeus*. For an edition and translation of Timaeus Locrus, see Timaeus Locrus 1972a and 1972b. Within the framework of a *prisca theologia*, more authority was attributed to sources that were older, because they were believed to have been written closer to the moment of Creation itself as well as to the writing about Creation in the Bible. See Copenhaver and Schmitt, 1992, 147–163.

19 Kristeller 1944, 257–318.

20 See Haar 1961, 84–89; and Grant 1994, 19–31.

21 For the Renaissance narrative of a *prisca theologia*, see Walker 1972, 22–131. For Ficino's interpretative strategies in reading Plato, including his use of the narrative of a *prisca theologia* as an interpretative instrument, see Hankins 1990, 267–359, esp. 267 and 280ff.

is a religiously orientated philosophical tradition which, from the remotest thinkers of antiquity down to chosen learned men in Ficino's own time, demonstrated the concord of pagan thought with the truth of Christian revelation, whose highest mysteries it prefigured.[22] From this perspective, not only Moses but also, for example, Orpheus,[23] Pythagoras,[24] and Plato are said to have received their wisdom from the Jews. One of the primary concerns in Ficino's *Compendium* is a religious-philosophical reconciliation of the Timaean cosmogonic narrative with the biblical Creation story.

Ficino conceives of the doctrine of the harmony of the spheres as one of the mysteries that were revealed to the *prisci theologi* (i.e., the chosen religious men initiated into a kind of universal wisdom). The cosmology and philosophy of nature of the *Compendium* are both based on the assumption that the key to the secret knowledge of the universe is sometimes directly revealed by God during songs and prayers. Therefore, this secret knowledge had been apprehended only by the wisest religious men on Earth throughout the centuries, about whom Ficino reports:

> Among all peoples, we have discovered that certain men, outstanding in their wisdom, exerted themselves chiefly in prayer, especially the Indian Brahmans, the Persian Magi, and the Greek theologians, but that the Chaldeans adored another sort of thing. They venerated the very power of the celestial deities, calling it God, by that single name.[25]

Despite small differences in their religious practices, in Ficino's view these *prisci theologi* share a belief in a world that is created harmoniously by one God. Accordingly, in his *Compendium*, scientific knowledge of the world is envisaged as a kind of wisdom transcending the boundaries of human reason and language. Consequently, the Timaean doctrine of cosmic harmony is associated with the archetypal harmonic language of Creation—that is, the lost speech which humans could naturally understand until the Fall and the curse

22 The relationship between the historiographic narrative of a *prisca theologia* and the doctrine of world harmony is discussed in further detail in Haar 1961, 197–212.

23 For the Renaissance reception of Orpheus, see Walker 1953; and Harrán 1990. For Ficino's reception of Orpheus, see Voss 2000 and 2002.

24 For Ficino's reception of Pythagoras, see Celenza 1999, 667–711.

25 *Compertum vero habemus excellentissimos quosque apud omnes gentes sapientia viros divinis potissimum votis incubuisse, praecipue Indorum brachmanas, Persarum magos, Graecorum theologos. Caldaeos autem et aliud quiddam adoravisse. Ipsam enim superorum virtutem appellantes deum uno hoc nomine venerati sunt. CiT* VI, 60^{r} (chapter and page number in the 1496 edition of Ficino's *Compendium*).

of Babel's many tongues.[26] Songs and prayers, moreover, are the most efficacious means to retrieve this lost musical language.

2.2.2 *A Hymn to the Creator of the Cosmos*

One of the metaphors that had flourished from antiquity which is used by Ficino in his *Compendium* to convey cosmic harmony is the idea of the cosmos as a creature singing a hymn to the Creator. For his explanation of the prologue of the *Timaeus*, Ficino leans heavily on Proclus's *Timaeus* commentary, because he believes that this Neoplatonic predecessor penetrated the dialogue most profoundly.[27] Proclus understood well, in Ficino's eyes, that Plato's *Timaeus* differs from most other Platonic dialogues because it is in fact not a dialogue but a musical structure capable of echoing the musical structure of the world itself. This becomes clear already in the beginning of the dialogue, where Socrates exclaims, "[Timaeus], this overture of yours was marvellous", in reaction to Timaeus's famous request that his audience be content with a plausible story.[28]

Martijn (2010, 11) notes that this remark is important because, by Plato's choice of the word 'prelude' or 'overture', he makes Socrates suggest that the account which Timaeus is providing is a musical piece or a musical performance. She notes, moreover, that the same image of a musical performance is present in the very first lines of the *Critias*, the sequel to the *Timaeus*.[29] It is here that we find the end of Timaeus's account, in the form of a prayer for forgiveness for any false notes. With this added element of the prayer, Timaeus ends his speech as he began his preface at *Tim.* 27d. Whereas at the beginning of his account he prayed to the gods in general, he here addresses the Demiurge.

Ficino's overall interpretation of the *Timaeus* adopts the Proclean image of the musical performance of a prayer, deliberately comparing Timaeus to a lyre player who composes hymns to the gods.[30] Just like his predecessor, Ficino also classifies the *Timaeus* as a hymn in which the whole cosmos is identified with a divinity.[31] In order to be able to fathom the harmonic Creation of the Demiurge—whom Ficino equates with the biblical God—the reader is urged to imitate Timaeus in sung prayer, because only then will he be enlightened in

26 Bono 1995, 26–47.

27 Etienne 1998, 169–190.

28 Plato 2000, 23.

29 *Critias* 106a.

30 See *CiT* VI and VII, corresponding to *Tim.* 27d and Proclus's *In Tim.* 1.355.4–9.

31 Martijn 2010, 12.

such a way that he will be able to fathom the secret knowledge of the harmonic structure of the world:[32]

> The pure approach prayer decorously, bringing with them three principal companions: faith, truth, and charity. In this company, they grasp the firm faith of the good, and having put themselves beyond other things, they immerse themselves entirely in light.[33]

Following Proclus, Ficino argues that a cosmology or a philosophy of nature must be built on the foundations of faith, truth, and love. Knowledge is granted in the act of divine illumination, and hence, 'scientific truth' is fully dependent on faith and love. Only in the act of prayer can the praying person be united with God as the object of his prayer.

Furthermore, because God endowed all his creatures with a natural appetite for knowledge, especially for knowledge of the good and the divine, man is able to obtain certain knowledge about the universe. First, an awareness of the harmony of the human soul and its divine origin is required, and then

> the humble adoration that arises from this absolutely completes this very restoration of ours in God, attracting divine beneficence to us by a natural congruity, coupling the adorers with the adored, adjusting the prayers of the devoted to the intelligences of the gods, moving the will, which is the producer of divine persuasion, of those who embrace all good things in themselves to impart good things to us according to our prayers, so that everything in our life is firmly established in the superior world.[34]

In the unique moment of unification of subject and object through prayer, scientific knowledge emerges. Ficino ends his commentary on the prologue of the *Timaeus* here. No further explanation of the subject is given, because "these things are [already] demonstrated by Iamblichus and Proclus".[35]

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32 Kristeller 1943, 316–323.

33 *Puri vero decenter ad supplicandum accedunt, ducentes videlicet secum tres praecipue comites: fidem, veritatem, et charitatem. Quibus stipati spem bonorum concipiant firmam, atque extra cetera seque ipsos positi divinae seipsos luci prorsus immergant. CiT* VI, 60^{v}.

34 *Ipsam vero nostram in deum restitutionem adoratio supplex hinc orta absolute consummat divinam in nos beneficentiam naturali trahens congruitate, copulans adoratores cum adorato. Coaptans superorum intelligentiae voventium preces, movens voluntatem eorum qui bona in se omnia complectuntur ad bona nobis ad votum impertienda, divinae persuasionis effectrix, nostra omnia in superorum stabiliens firmitate. CiT* VI, 60^{v}.

35 *CiT* VI, 60^{v}.

In order to frame Plato and the Neoplatonist tradition in the larger narrative of the *prisca theologia*, Ficino concludes his discussion of the musical structure of the *Timaeus* and the power of prayer with the following statement:

> To this the great Theodorus[36] adds: "If anyone explores the nature of things with great diligence, he will discover that not only souls and minds but indeed all beings except the First Being worship and pray".[37]

Theodorus appears at this point in the commentary as an enlightened philosopher, who already knew that all different parts of the universe are animated and that they are created with the purpose of singing or praying a grateful hymn to the Creator of the cosmos.[38]

As a last link in the chain of pious philosophers, Ficino thus takes the 'universal truth' that the cosmos is a hymn to its Creator as his point of departure for the cosmology and philosophy of nature presented in his *Timaeus* commentary. Following the *Timaeus* closely, he introduces the cosmos as an intelligent living creature, an animated organism whose parts are harmonically joined together in perfect order:

> Of this [World-]Creature the firmament is like the head, which displays the Soul's animal, sensitive, and intellectual power and which proceeds through all things through the [the rays of its] starry eyes. And the Sun is its heart, which possesses its vital power to the maximum degree and develops it far and wide. The Moon, then, is its liver, propagating this same natural vigour through all things.[39]

The cosmos is represented here as a living and vibrating organic unity, in which each part is harmoniously connected with every other part, with which it operates interactively in order to fulfil the common task of the conservation of the life of the whole. The principle of life of this cosmic organism is

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36 Presumably, following Proclus's *In Tim.*, Ficino is referring here to Theodorus of Asine. See Proclus 1903–1906, 3: 187; and Theodoros von Asine 1973.

37 *His addit magnus Theodorus: Siquis naturas rerum diligentius exploraverit, inventurum non animas tantum atque mentes, sed quodammodo omnia excepto primo, adorare atque vovere. CiT* VI, 60^{v}.

38 For the influence of Theodorus's ideas on Ficino, see Robichaud 2013, 189–190.

39 *Animalis huius quasi caput est firmamentum, virtutem eius animalem sensualemque et intellectualem prae se ferens, perque stellares oculos per omnia proferens. Cor vero sol, vitalem eius virtutem maxime possidens, ac largius explicans. Iecur autem luna, naturalem eiusdem vigorem per cuncta propagans. CiT* XXXVIII, 75^{v}.

the World-Soul, which permeates and governs everything and is manifest in every part, with each part possessing its own individual soul. The World-Body consists of passive, definable matter which experiences its movement, change, and moulding through the World-Soul. Since the World-Soul permeates the whole physical world through the mediation of the individual souls of its parts, that which is valid for the whole must also be valid for each of its parts, including matter. In the same way that the whole of the cosmos is animated, each part of it is alive, even stars, planets, stones, and metals:[40]

> By the one firmament full of innumerable stars he [i.e., Plato] represents the divine Mind, which is uniform indeed, but multiform with the series of Ideas. By the wandering spheres of the planets, above all by the Moon, he indicates the many types of discursive motions of its Soul. By the four elements subject to generation [he indicates] the generative power of the Soul. Thus, I have dared to analyse the World-Creature, as it were, through its parts.[41]

Whether the World-Soul manifests itself as a life-giving, sensible, or intelligible principle, matter that is permeated with soul will always have a nature and function equal to that of its soul. Accordingly, Ficino attributes a kind of perception to everything in nature. He explains this by stating, first, that animals on Earth, which are able to feel to a certain extent, are composed of the four elements earth, water, air, and fire. For that reason they must also be capable of perception. Next, he argues that if animals possess a certain kind of perception, and if it is true that perception does not originate from nothing, then it follows that perception must be attributed to all the elements that are the animals' material causes. As we shall see below, this assertion makes sense on the basis of one of the ultimate principles of Ficino's philosophy (i.e., what is in a certain effect must also be in its cause). In the meantime, let us return to our argument.

Ficino describes the structure and subdivision of the organic cosmic whole as a hierarchy fundamentally based on the tripartite division of Intellect, Soul,

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40 See *Tim.* 58c–61c.

41 *Per firmamentum vero unum stellarum innumerabilium plenum repraesentat divinam mentem uniformem quidem, sed idearum serie multiformem. Per vagos planetarum globos praecipue per lunam indicat multiplices animae suae discursiones. Per quatuor elementa generationi subiecta virtutem animae genitalem. Ausus equidem sum mundanum animal ita quasi per membra digerere. CiT* XXXVIII, 75^{v}.

and Body.[42] This partitioning is developed into a fivefold subdivision (God, Angelic Intellect, Reason, Quality, and Body). Another way of representing the hierarchical structure of the World-Creature used in Ficino's *Compendium* is as a harmonic arrangement of concentric spheres, in which Earth is the centre, followed by the Moon, Sun—according to the Platonic order—and the other planets: Mercury, Venus, Mars, Jupiter, and Saturn.[43] The inaudible music caused by the perfect revolutions of the planetary spheres around Earth is the music, or harmony, of the spheres. This planetary symphony is the most perfect example of all the different ways in which parts of the cosmos are capable of singing a hymn to their Creator.

2.3 A Divine Geometrical Method for a Philosophy of Nature

2.3.1 *The Divine Composer-Architect as First Cause of the Universe*

As Etienne (1998, 200) observes, Ficino explains in *Compendium* VII that in the *Timaeus* Plato used the metaphor of the universe as a work of art made by a divine Composer-Architect first of all in order to be able to demonstrate its divine geometrical structure. The Divinity manifests itself in the three main causes of the universe:

> Afterwards, however, having said prayers, Timaeus, because he holds that the world is created, and hence created by something else, examines its threefold cause: first, the efficient cause, that is, the divine Mind; second, the exemplary cause, that is, the series of Ideas conceived in the divine Mind; third, the final cause, that is, the Good.[44]

Ficino argues here with Proclus that the harmonic universe is the result of a Demiurge, or divine Composer-Architect, who as its first, efficient Cause creates or causes an object according to a model (the exemplary cause) with a

42 The fivefold division of the cosmos is alternated with other divisions which ultimately can all be brought back to a harmonic threefold order with two extremes (Mind and matter) and a mean (an intermediary between Mind and matter, i.e., Soul). See *CiT* XXVIII and *TP* III.i.1–16.

43 See Ptolemy 1940, I.4–8 and I.20.

44 *Posthaec autem actis precibus Timaeus, quia mundum existimat esse factum, ideoque ab alio factum triplicem eius causam perscrutatur. Primo quidem efficientem, id est divinam mentem. Secundo exemplarem, id est idearum seriem divina mente conceptam. Tertio finalem, id est bonum. CiT* VII, 60^{v}.

certain purpose (the final cause).[45] The efficient cause is further explained in terms of a divine Intelligence that pervades the whole universe. In this explanation, Platonic causal vocabulary becomes fused with the Aristotelian technical terms for different types of causes. In contrast with Proclus, however, Ficino associates the three causes of the universe with the Christian Trinity: the Father with the efficient cause, the Son with the exemplary cause, and the Holy Spirit with the final cause.[46] As Allen (1987, 428) notes, according to Ficino "Plato, like the Prophets, had arrived in the *Parmenides* and the *Timaeus* at the threshold of understanding the Trinity, but been unable to effect the ultimate comprehension".[47]

Having defined the three causes of the universe, Ficino tries to reconcile the Timaean Intellect of the Demiurge with the Christian God. In the chapters IX and X of his *Compendium* he argues in favour of the superiority of the Mosaic and Christian truth, which articulates that the demiurgic Intellect is the first spiritual substance generated by God as the absolute One and absolute Good. As Kristeller (1943, 218) notes, Ficino equates the second hypostasis (the Intellect) in the Plotinian scheme of emanations with the first (the One) in order to adapt it to a Christian conception of God's relationship with His Creation. Hence, in Ficino's Christian terms, the demiurgic Intellect, which is the source of order and beauty, is not consubstantial with the Good as in the *Timaeus* but depends on matter.

Ficino's interpretation of Plato on this point is clearly an attempt to reconcile the doctrine of the Trinity with the way in which the Neoplatonists placed an intermediary between the multiplicity of the sensible world and the unity of the first principle. In order to justify this peculiar interpretation, the Florentine goes so far (in *Compendium* XVI) as to argue that Plato even prefigured the Gospel of John (1:1), where the divine Word, Logos, or Light of the Father is equated with Christ:[48]

> Then [Plato] demonstrated that the very divine exemplar [model] of the world, which the Evangelist, but in a more divine sense, called the divine Word [Logos], is unique, because that which contains all things leaves nothing outside itself and hence is unique by necessity.[49]

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45 Proclus 1903–1906 (c. 1965), 256.1–2.

46 Etienne 1998, 200–203.

47 See also Allen 1984a, 556.

48 Allen 1987, 434.

49 *Ostendit vero deinceps divinum ipsum mundi exemplar, quod Evangelista, sed diviniore sensu, divinum appellat verbum, esse unicum, quia quod contineat omnia, nihil relinquat extra seipsum ideoque sit necessario unicum. CiT* XVI, 63^{v}.

Ficino puts a high value on the reconciliation of Plato's Demiurge with the biblical God, because the concept of God as a divine Composer-Architect provides him not only, as Allen (1987, 437) has observed, with an explanatory model of the beauty and order of the world but also with a theory of man's creativity.

The belief that Plato's Demiurge prefigures the biblical God is a clear example of what Hankins (1990, 355) has described as Ficino's interpretative strategy of revaluation. Once the pagan *Timaeus* has been brought into the prehistory of Christianity, it can be beneficially used in the context of a theological philosophy of nature. 'Upgraded' to an ancient Christian source, the *Timaeus* can supplement the spare account of the world's origin given by Genesis. To conclude this analysis of Ficino's conception of God as the First Cause of the universe, it may be argued that his attempt to reconcile different conceptions of God from different traditions produces a rather ambiguous theory of the relationship between God as the First Cause and His harmonic Creation. Perhaps Genesis and the Timaean Creation narrative are less compatible than Ficino suggested. In reconciling the two stories, he weakens the strict logic of a Neoplatonic conception of world harmony, as will be discussed below.

2.3.2 *Seven Cosmic Principles*

In addition to the principle that (1) the world is created by God, Ficino's theory of cosmic harmony derives from a number of other principles, which are nowhere clearly listed in his *Compendium*.[50] He conceives of the order of the universe as a hierarchically layered structure in which (2) "effects come into being much more from their antecedents than from their consequences".[51] In this structure, (3) the rationale of the different parts is derived from the whole, of which they are components. Human beings, for example, "are parts of the whole" who "without any doubt need the whole, because the orientation to the whole guarantees the well-being of its parts".[52] (4) God, moreover, as the absolute One, precedes His whole Creation (*pluribus unum*), because otherwise the parts would risk dissolution into nothing:[53]

> From the divine Unity all things proceed, and while coming into being, they maintain a certain unity that is impressed in them, an image of the

50 These ultimate principles are not enumerated anywhere in Ficino's philosophy, presumably because they were self-evident in his time. For Ficino's conception of cosmic principles and powers, see Kristeller 1943, 60–198, esp. 121ff.

51 *. . . videbis effectus multo magis ab antecedentibus fieri quam sequentibus. CiT* X, 62r.

52 *Profecto cum universi partes simus, universo proculdubio indigemus. Ipsa enim ad totum conversio partibus salutem praestat. CiT* VI, 60r.

53 Heninger 1974, 147.

> divine Unity, by which they are called back to him, and having been called back, they become more perfect.[54]

Furthermore, (5) unity manifests itself in the world without leaps in a continuous progression of being. Yet "because a part of the whole is not able to pursue the One in a single stroke or moment, it finally pursues it in a perpetual succession of many strokes".[55]

Cosmic order is anything but a static perfect condition. Ficino explains that in "the world we see not just a distinction between the forms" but indeed a lively and active permanent "struggle, because the world proceeds from its prime Origin and by proceeding it degenerates".[56] This results in (6) "the contrary quality and figure of the elements and the heavens" that "lead daily to the generation of new forms, that is, by conferring motion [to the elements]".[57] A pair of contraries placed in opposition, however, will not submit to synthesis.[58] The simplest statement of cosmos, in fact, requires at least three terms to permit an organic relationship among component parts. To counterbalance the eternal and universal struggle of contraries, (7) a principle which reconciles all opposites in the world (*concordia discors*) must be active.[59] In the *Timaeus*, this principle is embodied in the concept of Soul:

> Because it [i.e., Soul] is the mean of things, it is also rightly composed from all things, and it binds all things harmoniously together. Hence, it is compared to a harmony or harmonious compound, especially because

54 *Ab unitate divina omnia prodeunt, prodeuntiaque unitatem quandam ipsis impressam retinent, divinae unitatis imaginem: qua et revocantur in illam, et revocata perficiuntur. CiT* VI, 60^{r}.

55 *Quod igitur nequit uno quodam ictu vel momento consequi saltem multis perpetua successione consequitur. CiT* XXXVII, 75^{r}.

56 *Non solum vero distinctionem formarum, sed etiam repugnantiam videmus in mundo. Procedit enim a primo et procedendo degenerat. CiT* XVIII, 64^{r}.

57 *Conducit autem contraria elementorum caelorumque qualitas et figura ad novas formas quotidie generandas, conferente videlicet motione. CiT* XVIII, 64^{r}.

58 According to Aristotle, the Pythagoreans had delineated a series of ten contraries in corresponding pairs: Limit and the Unlimited, Odd and Even, Unity and Plurality, Right and Left, Male and Female, Rest and Motion, Straight and Crooked, Light and Darkness, Good and Evil, Square and Oblong. See Aristotle, *Metaphysics* 986a23–986a26.

59 Heninger 1974, 147.

> Soul reconciles those [elements] that fight each other in Nature and binds what has been reconciled and preserves what has been bound.[60]

To recapitulate, cosmic order ultimately implies that the different parts of which the world consists retain their autonomous identity even though they function harmoniously in a system of dynamic stability. The seven principles of Ficino's theory of cosmic order may now be reformulated as follows:

1. The world is created.
2. The cause precedes its effect and is superior to it.
3. The whole precedes the parts.
4. *Pluribus unum*: unity precedes plurality.
5. Nature makes no leaps, or in other words, the progression of being is continuous.[61]
6. Whenever one of a pair of logical contraries is said to exist, its opposite must exist as well.
7. *Concordia discors*: the cosmos is a reconciliation of opposites.

The Florentine formalizes causality (i.e., relationships of cause and effect) teleologically: God as the origin functions as a ground of connection for all heterogeneous things in the cosmos. God is both the common origin and the common principle of existence of all different parts of the world. Even though the seven principles can be distinguished from each other, they are interrelated. For unity to arise from plurality and yet remain stable, all the parts of the world in their infinite manifestations must be incorporated in the archetypal model of Creation. Furthermore, for the same reason, opposites must be reconciled in the resultant unity. Thus, cosmic order in Ficino's *Compendium* is understood as all-inclusive and can be expressed by way of seven principles. These demonstrate Ficino's teleological mode of thought, which always aims at an explanation of the universal harmonious coexistence and unity of all things on the basis of God as their common origin.

The geometric method of Ficino's cosmology is derived from God's archetypal model of Creation as described in the biblical Creation story as well as in the cosmogonic narrative in the *Timaeus*. Theology and philosophy of nature

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60 *Deinde quia media rerum est, merito et ex omnibus componitur, et concorditer cuncta devincit; ideoque cuidam vel concordiae vel concorditer composito comparatur, praesertim quoniam quae in natura inter se pugnant, anima conciliat invicem, conciliata connectit, connexa conservat. CiT* XXVIIII, 69r.

61 For an introduction to the concept of the 'chain of being', see Lovejoy 1961.

are still fully interrelated in Ficino's *Compendium*. Given that the human mind, as an integral part of the cosmic whole, is created according to the seven cosmic principles, it is also subject to thinking in pairs of logical contraries, which initially prevents insight into the archetypal unity of the world. Like other commentators on the *Timaeus*, Ficino argues that in order to transcend these limits of human reason, one has to follow the traditional path of the four mathematical disciplines, because knowledge of numbers and harmonic proportions as the objects of mathematics will enable one to discover God's model of Creation within the physical world.

In keeping with the tradition of commentaries on the *Timaeus*, Ficino's explanation of the musical universe has the seventh principle, *concordia discors* (the harmonization of opposites in the cosmos), function as an arithmetical or geometrical operation, where the quantities (multitudes or magnitudes) are considered primarily in relation to themselves. But the fourth principle of a *pluribus unum* (unity out of plurality) may be regarded as a musical or an astronomical operation, in which the quantities (stable or mobile) are seen primarily in relation to one another. Ficino often encounters problems when he attempts to explain the details of Plato's mathematics, either because he has failed to understand his sources or because he regards their content as untrue or superseded. Because these small changes in his explanation and interpretation of the four mathematical disciplines often reflect interesting changes in the doctrine of world harmony, they will be analysed in detail below at 2.4.

2.3.3 *Number over Matter*

Ficino's theory of cosmic order is a formalist metaphysics in which cosmic principles are explained in terms of numerical similarities instead of matter. As a consequence, ultimate reality is located in an intellectual world of forms rather than a physical world of matter. This ultimate reality functions as a metaphysical conceptual structure, which encloses the whole physical cosmos. By postulating an eternal, intelligible harmonic universe, the changes that man on Earth perceives in nature can be correlated with unchanging numbers and proportions, and consequently, they can be submitted to rational analysis.

Ficino's theory of numbers clearly positions him in opposition to theories holding that a material substance is the ultimate constituent of reality, although, paradoxically, this view is also stated in the *Timaeus* itself.[62] Many

62 See *Tim.* 30c–34a, corresponding to *CiT* IX, XII, and XXXXIII. For Ficino's concept of matter, see Kristeller 1943, 38–39, 40–41, 47. For the status of matter in the hierarchy of being, see Kristeller 1943, 76, 78, 90. For the distinction between form and matter, see Kristeller 1943, 232; Etienne 1998, 219–240; and Snyder 2008.

famous commentators on the Timaean cosmogonic myth had argued that Plato was a partial materialist, because he assumed that primal matter existed before the act of Creation and that it is out of this self-existent element that all things in nature evolve and to which they all return. In his *Compendium*, Ficino contends that his kind of materialism deals only with perishable aspects of nature instead of its eternal structure. Conversely, he argues that the material things in nature must be considered "as being in a stream that flows without interruption". Just like images of, for example, mountains in a stream, he then explains, material things are merely images and shadows of real things.[63]

In Ficino's view, matter is associated with aspects of nature which are always 'becoming' and never really 'are'. Consequently, he adduces that if things in nature were created from matter, they would be in constant flux, lacking a genuine identity, and therefore would remain largely unknowable. Materialism, moreover, must almost automatically lead to the idea of the eternity of the world.[64] The first consequence is irreconcilable with the Christian doctrine of man, who is made 'in the image and likeness' of God and therefore must be able to know the world. The second, as Allen (1987, 421), for example, argues, contradicts the Christian teleological view of history as a story of salvation which began with a Creation *ex nihilo* and is directed toward an end in the hereafter.[65] Consequently, it can only be the case that something other than matter is the foundation of ultimate reality.

To find out precisely what constitutes the intelligible ultimate reality, Ficino resorts first to Plato's original dialogue. He reconciles its dichotomy between the metaphysical realm of abstract concept and the physical realm of the existing material world by making 'primal matter' a concept in the Mind of the biblical Creator.[66] By arguing that primal matter was conceptual in nature, the Florentine bridges the Platonic view that matter existed before the Creation with the Christian view of a Creation *ex nihilo*.[67] Furthermore, given that God possessed a concept of numerical rational order even before the world was created from nothing, primal matter must also possess this archetypal order.

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63 *. . . perinde ac si in torrente iugiter fiat restituaturque imago montis, semper quidem in ipso fieri ducta, nunquam in esse consistens. CiT* VII, 60^{v}. In this passage Ficino follows Plato in *Cratylus* 402a, where Plato paraphrases a famous saying by Heraclitus: that all things flow (*panta rhei*) and therefore no man ever steps in the same river twice.

64 Etienne 1998, 241–258.

65 Kristeller 1943, 135–136.

66 *CiT* VIIII, corresponding to *Tim.* 29d–30c.

67 Etienne 1998, 228.

Subsequently, Ficino explains that without exception the whole world from the macrocosm down to the smallest elementary particle is an expression of divine Creativity and therefore can be analysed in terms of number and harmony. In this explanation, he rephrases Plato's famous definition of the dichotomy between the eternal intelligible world of 'being' and the transient sensible world of 'becoming' as follows:[68]

> Just as the intelligible world always is, but never comes into being, so the whole sensible world, as Timaeus says, is always becoming, but never truly is. Therefore, Plato in his *Republic* defines all sensible things as images and shadows.[69] That divine saying "All is vanity"[70] refers to the same idea.[71]

In order to reconcile the *Timaeus* with the Bible, in this passage Ficino points out that both books share the same view on the dichotomy between the perishable realm and the eternal world. Finite human existence is characterized in Ecclesiastes with the term 'vanity' as merely a temporary appearance, which is contrasted to the eternal harmonic laws of God's Creation (*musica mundana*). Given this dichotomy, it seems almost impossible to gain true knowledge of the world during one's short life on Earth. But to overhaul this limitation of the human condition, the *Timaeus* and the Bible both postulate an eternal intelligible world of being, which is perceptible to the human mind. By way of his immortal human soul, man participates in this intelligible harmonic world (*musica humana*). This world contrasts with the perishable world of becoming, which Ficino defines as the sensible world, which is perceptible to the senses and the body. Since that which is becoming continually changes, it has no essence and cannot be known, and therefore it is the object of opinion only. That which exists in the conceptual or intelligible realm, however, is permanent and therefore knowable through the exercise of reason. Hence, the secrets of nature may be uncovered by grasping nature's underlying divine geometrical and musical structure.

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68 *Tim.* 27d–28a.

69 *Republic* VI.

70 Ecclesiastes 1:2.

71 *Ut quemadmodum mundus intelligibilis semper quidem est, fit vero nunquam; ita totus sensibilis, ut Timaeus inquit, semper quidem fiat, sit autem re vera nunquam. Propterea in Re publica sensibilia cuncta Plato imagines appellat, et umbras. Huc tendit divinum illud. Omnia vanitas. CiT* VII, 60^{v}.

In his attempt to understand the underlying intelligible harmonic structure of the universe, Ficino also seeks to align the *Timaeus* with the dominant Aristotelian cosmology of his own time. In order to reconcile Plato with Aristotle, Ficino argues that in their definition of number they are fully compatible: "by numbers [Plato] understands the species themselves of natural things and the substantial forms, and Aristotle also compared these to numbers".[72] Through this sleight of hand, Ficino is able to integrate valuable components of Aristotle's philosophy of nature into his own Neoplatonic theory of cosmic order.

Combining Plato's mathematics with Aristotle's philosophy of nature enables Ficino to understand God as the First Cause of the universe, which acts upon latent matter, although he has argued that matter and form were created simultaneously in previous chapters of his *Compendium*.[73] In order to establish a dualistic framework of matter and form in his *Compendium*, Ficino contrasts the Aristotelian notion of primal matter as a principal substance with non-substantial forms that a permanent existence in the conceptual realm but that, nonetheless, can experience temporary extension into the physical world. In such a dualistic universe, everything in nature can be analysed into two distinct components: a form which corresponds to the human intellect, and matter which corresponds to the senses:

> In the *Parmenides*[74] and in the *Sophist*[75] Plato certainly deduces all the levels of beings from this One and Good which is above every essence: of those things which truly exist, that is, of separate forms, and of those which truly do not exist, that is, of the forms inhering in matter, and the lowest grade of matter.[76]

Having discussed the relation of matter and form, forms or ideas that exist in the Mind of the Creator can now be defined by Ficino as numbers and as

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72 *Per numeros quidem intelligi vult ipsas rerum naturalium species formasque substantiales; quas etiam Aristoteles numeris comparavit. CiT* XVIIII, 64^{v}.

73 Etienne 1998, 222–238.

74 For Vanhaelen's edition and translation of Ficino's *Parmenides* commentary, see Ficino 2012.

75 For Allen's edition with commentary of Ficino's interpretation of Plato's *Sophist*, see Ficino 1989a.

76 *Ab hoc utique uno bonoque super omnem essentiam eminente, Plato in Parmenide et Sophista omnes entium deducit gradus: tum eorum quae vere sunt, id est formarum separatarum; tum eorum quae non vere sunt, id est formarum materiae inhaerentium; tum infimum materiae gradum. CiT* VIIII, 61^{v}.

potential parts of the cosmos, which can be defined in terms of the mathematical discipline of arithmetic by an arrangement of points.

Ficino's interpretation of Plato's concept of cosmic harmony has its own characteristic properties and differs in some fundamental aspects from the interpretation of his famous predecessors, but in broad outline he adopts Plato's dualistic world view, in which a conceptual world of form and a physical world of matter are interrelated through number:

> And fully justifiably he [Plato] joins Divinity and Nature. For Nature is an instrument of the Divinity. Just as Plato in a divine way deals with things natural, so Aristotle deals in a natural way with things divine. And Plato also adds things mathematical as a mean between both, that is, between things divine and things natural, so that they [i.e., things mathematical] signify things divine through numbers, and things natural through dimensions.[77]

A number, or 'thing mathematical', is a bridge between the world of 'things divine' and 'things natural'. Things divine belong to the Mind of the Creator, which is beyond human senses. The physical representation of number in things in nature, however, can be used as a clue to make intelligible what might otherwise remain beyond human knowledge.

In Ficino's interpretation of the *Timaeus*, in contrast to some of his Neoplatonic predecessors, the intellectual world of pure forms interacts directly with the physical world of generation and corruption.[78] God himself determines the constitution of the cosmos, although "all the other interpreters of Plato would object to this".[79] In this way, Ficino believes, the constant flux of appearances in nature can be fitted into a Christian, rational cosmological scheme, which can then be used for further scientific investigation.

Ficino's *Compendium* conceives of things in nature as created according to mathematical proportion, or musical harmony, because this was the most coherent and scientific way to understand the cosmos in terms of a theological philosophy of nature in his time. As a result, numbers, proportions, and

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77 *Neque iniuria divinitatem simul naturamque copulat. Natura enim divinitatis est instrumentum. Atque ita vel de naturalibus agit divine, quemadmodum Aristoteles vel de divinis naturaliter agit. Interserit quoque mathematica tanquam utrorumque media, divinorum scilicet atque naturalium. Quae videlicet, per numeros quidem divina, per mensuras vero significent naturalia. CiT* I, 59^{r}.

78 Allen 1987, 423–431.

79 *Sed ceteri Platonis interpretes reclamabunt. CiT* VIIII, 61^{v}.

harmonies rather than matter and its qualities are the ultimate constituents of the world. Numbers and proportions are presumed to be true, beautiful, and good, and they impart direction to the pursuit of knowledge. They function, moreover, as the predetermined goals that human beings seek in their spiritual ascent towards the experience of absolute truth, the intelligible world, and, finally, God.

Although numbers and their harmonious arrangements in Ficino's *Compendium* are still the appropriate subject for ontological and epistemological enquiry, at the same time they are subject to debate. Because Plato's explanation of cosmic order in the *Timaeus* somehow fails to match perfectly with the late fifteenth-century philosophy of nature, Ficino is compelled to update its harmonic model to meet the scientific criteria of his own time. To understand how he did so, I will first analyse the subtle changes he made in the four mathematical disciplines. Subsequently, at 2.5, I will address the continued effect of these changes for the doctrine of the harmony of the spheres.

2.4 Cosmic Harmony in Terms of the Four Mathematical Disciplines

A major part of Ficino's *Compendium* explains the Timaean view of cosmic harmony in terms of the four mathematical disciplines of the quadrivium: arithmetic, geometry, music, and astronomy.[80] For beginning scholars, these four mathematical disciplines constituted a path of learning that ultimately led to understanding the structure of the cosmos, in preparation for understanding the ultimate reality of God. Mathematics lent itself to the explication of universal order, for both the quadrivium and the idea of cosmos derived from the very same Pythagorean theory of numbers. Ficino's *Compendium* is one of the last commentaries on the *Timaeus* to uphold the Pythagorean belief in a strong connection between cosmic order and music theory. But the Florentine does not strictly follow the traditional quadrivial explanation as given, for example, by Theon of Smyrna or Calcidius; rather, he tries to update the Pythagorean mathematics of the *Timaeus* to align it with the scientific knowledge of his own time.

80 Roughly speaking, in Ficino's *Compendium*, chapters XVII and XVIV deal with arithmetic, chapters XX and XXVIII–XXXVI with music, chapter XXXXIV with geometry, and chapters XXV and XXXV–XXXIX with astronomy. The analysis of the four mathematical disciplines in Ficino's *Compendium* presented in this chapter is based on Heninger 1974, 71–145, as well as on his presentation of the Renaissance cosmos in Heninger 1974, 146–200; and 1977.

As the foundation for his theory of world harmony, Ficino passes down the analytic doctrine of numbers, proportions, and harmonies that had been traditionally regarded as a pillar of the theory of the harmony of the spheres in Plato's *Timaeus*.[81] He argues that if one believes that the world is created in an orderly fashion according to numbers, proportions, and harmonies, which serve as archetypes in the Mind of a creating God, then these must be the ultimate constituents of reality. Furthermore, because he regards the archetypal model of Creation, described in the Timaean cosmogonic myth as well as in the biblical Creation story, as carefully devised and executed by a rational and good God, its physical realization in the cosmos is expected to demonstrate universal ratio and harmony in the forms and relationships of which its structure is composed.

Ficino's concept of cosmic order is in essence mathematical, with the relationship between the different parts of the cosmos described in terms of harmonic numbers. At first sight, the *Timaeus* commentary seems to pass along Plato's interpretation of the Pythagorean doctrine of world harmony as a rather static explanation of the universe, dominated by the relationship between the diverse finitude of the physical world and the unified infinity of a foundational metaphysical world. On closer examination, however, Ficino's interpretation of cosmic harmony in terms of the four mathematical disciplines becomes increasingly problematic as he proceeds from simple arithmetic definitions to the complex theory of the harmony of the spheres, where the ideas of all these four disciplines are combined. This difficulty is inherent in the subject matter but is increased by Ficino's ambition to use Pythagorean theory to explain complex dynamic processes in nature, as we will see below.

2.4.1 *Arithmetic: Numbers Bridging the Conceptual and the Physical World*

Like previous commentators on the *Timaeus*, Ficino still firmly believes that numbers are the ultimate constituents of reality.[82] In the first place, number exists independently of physical reality, as an abstract concept understood as a pure, eternal, nonphysical form in a metaphysical intellectual realm. Number can be used to define a limited part of space, and it can even be used to impose shape upon matter in nature, in which case it receives physical extension into

81 For an introduction to Ficino's interpretation of the quadrivium in his *Compendium*, see Etienne 1998, 87–133. In his discussion, however, the discipline of music and harmonics (at 259–284) is only summarily addressed.

82 See Heninger 1974, 263ff. For an in-depth study of Ficino's account of the discipline of arithmetic, see Allen 1994, 44–80.

the time-space continuum and becomes perceptible to the human senses and intellect.[83]

In his attempt to define all grades of being as created by God and endowed from the outset with rational (i.e., numerical) order, Ficino harmonizes Timaean ideas about number with biblical ones:[84]

> Hence, if you take into consideration the six[85] grades of being which were previously adduced, perhaps you will become aware of how much Plato is like Moses, who completes Creation in six days. And [you will also become aware of] how much he is like Pythagoras, who attributes the number six both to the Creation and to marriage. Whence he calls this [nuptial number 6] 'Gamos' [holy marriage], for if its parts [1, 2, 3] are placed closely together [i.e., are multiplied and/or added], they create itself [i.e., result in the number 6], and they make the child like its parent.[86]

By 'number' Ficino refers in this quotation to a form determined by an arrangement of points. Hence, the 'parts' of the number 6 cited above are the different points or combinations of points of which it consists (fig. 2.1).[87]

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83 In his theory of cosmic harmony Ficino uses conceptual and sensual numbers in the same way as Augustine in his *De Musica* (*On Music*). In his *Platonic Theology* Ficino copied a passage from *De Musica* 6.2.3 which contains the definition of Augustine's judging numbers, which equal pure, conceptual numbers, and sensual numbers, which equal numbers in nature. See *TP* XII.6.3–6, in Ficino 2001–2006, 4 (2004): 77–85. For a discussion of the relationship between music and Christian intelligence in Augustine's *De Musica*, see O'Connel 1978, 50–90.

84 Ficino lists Philo of Alexandria as one of his sources for this interpretation.

85 Presumably to create an analogy with the six days of Creation, Ficino gives here a subdivision of being in six grades instead of the five grades that he often uses.

86 *Proinde si gradus rerum sex in superioribus adductos consideraveris, perspicies forte quam similis sit Plato Mosi, sex diebus mundi genesim absolventi, quam similis et Pythagoras, probans senarium numerum genesi nuptiisque prorsus accommodari, unde et Gamon appellat; propterea quod partes suae iuxta positae ipsum gignant, similemque reddant genitum genitori. CiT* XII, 62^{v}.

87 Ficino's definition of a number as an arrangement of points is derived from Theon of Smyrna. Ficino made a Latin translation of Theon's *Expositio rerum mathematicarum ad legendum Platonem utilium* (*Mathematics Useful for Understanding Plato*), now kept in the Bibliotheca Apostolica Vaticana (coll. Vat.Lat. 4530; the marginal notes indicating the arrangements of dots which represent numbers are given at fol. 126r). See Theon of Smyrna 1966 (1892); and 1979. For an introduction to the harmonics of Theon of Smyrna, see Mathiesen 1999, 793ff.

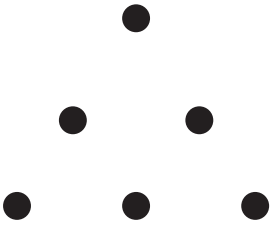

FIGURE 2.1 *A Pythagorean arrangement of dots representing the plane number 6.*

In addition to this quantitative definition, Ficino also gives a qualitative definition of the 'nuptial' number 6 as the most appropriate number to express the God-created analogies in the world by the analogous relationship of 'consanguinity'.[88] He evidently understands the process of differentiation in the world from unity into multiplicity in terms of consanguinity, where the relationships between 'parents' and 'children' are represented in terms of numerical similarities. In analyzing the passage cited above, it becomes immediately clear that Ficino makes no sharp distinction between quantitative and qualitative aspects of numbers. In one instance, 'number' refers to form in an abstract sense (i.e., separated from matter), as we use numbers, but on another occasion, he uses number as a qualitative entity with a numerological value. This combined quantitative-qualitative view of numbers loads his numerical theory with many layers of metaphysical and symbolic meaning, which often provide clues for his specific interpretation of traditional Pythagorean and Platonic number theory. In particular, the treatment of these qualitative aspects of numbers plays a fundamental role in Ficino's strategies of appropriation and manipulation of traditional quadrivial ideas.

In an attempt to explain the emanation of plurality in the physical world from this archetypal unity, Ficino follows the Christian Neoplatonic tradition in equating the biblical God, the 'Good-One', with the point, which exists only as a pure concept.[89] The Good-One is not a number but the principle of number, just as a point is the principle of magnitude. Yet a point can be given physical identity by being placed in relationships—for example, in the figure of the number 6 (fig. 2.1). When a divine number is impressed upon space and fixed in position, it acquires extension; when divine number is impressed upon matter, it acquires physicality. Therefore, because the point as concept corresponds

88 For Ficino's definition of the number 6, see Allen 1994, 51–52, 67–68.

89 *CiT* VIII, 61r.

to the number 1, it assumes substance when it becomes, for example, a dot in a diagram.[90] Through numbers, Ficino places God, as the infinite and eternal divine Composer-Architect, in a relationship with every finite and perishable thing in nature.

Once Ficino has overcome the split between the intelligible world and the physical world by establishing the traditional relationship between God and the number 1, the emergence of plurality in the cosmos can be simply deduced. When the number 1 passes from the world of concept to the world of matter, it becomes extended and therefore divisible: 1 becomes capable of 2.[91] Furthermore, two points, though lacking dimension themselves, by their relationship define a line, which does have dimension. Accordingly, Ficino defines linear numbers as the first category of numbers:[92]

> Elsewhere we have declared that among the Pythagoreans numbers are of three kinds: linear, plane, and solid. Linear numbers are the ones that, like a point, only unity can measure, such as 2, 3, 5, 7, and the like [i.e., primes].[93]

From linear numbers, one can arrive at an explanation of the three-dimensional cosmos. First, the second dimension is defined as the configuration of three points, which define a surface.[94] These tripartite constellations of points are defined as 'plane' numbers (i.e., the second Pythagorean category):

> Plane numbers are multiplied from [linear] numbers as if they were sides of a figure. For example, the plane number 6 is made from 2 times the linear number 3, or 3 times the linear number 2.[95]

The third dimension is defined as a configuration of the four points that define a volume (fig. 2.2).

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90 Heninger 1974, 264–265.

91 Heninger 1974, 79.

92 See Allen 1994, 52–54; and Etienne 1998, 259–284.

93 *Triplices esse numeros apud Pythagoricos alibi declaravimus: lineares, planos, solidos. Lineares quidem, quos sola metitur unitas quasi punctum: ut binarius, ternarius, quinarius, septenarius atque similes. CiT* XVIIII, 64r.

94 See Heath 1921, 89.

95 *Planos autem, qui multiplicantur ex numeris quasi lateribus. Ceu senarius ex bis tribus fit terve duobus. CiT* XVIIII, 64r.

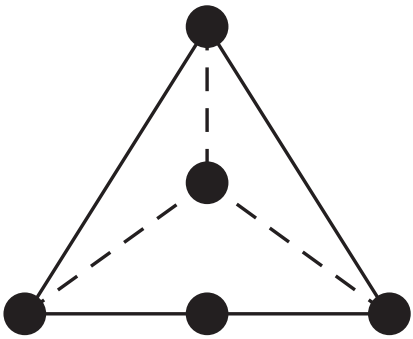

FIGURE 2.2 *A Pythagorean representation of dots representing the solid number 4.*

These quadruple constellations of points are defined as 'solid' numbers (i.e., the third Pythagorean category):

> Moreover, we termed solid numbers those that are formed by the multiplication and re-multiplication of some number by itself, just as a solid body is extended, so to speak, to a third dimension: as 2 times 2 times 2 is 8; and 3 times 3 times 3 is 27; and 4 times 4 times 4 is 64.[96]

Solid numbers, then, are the products of three factors greater than 1, whether of the same factor multiplying itself three times or of a factor multiplying itself and another factor or of three different factors multiplying each other. Through linear, plane, and solid numbers, the whole three-dimensional cosmos is created: at its origin it bears a numerical blueprint for world harmony.

In his interpretation of the structure of the World-Soul, which follows his discussion of the science of arithmetic, Ficino stresses the importance of another class of numbers: the circular numbers. These numbers, as we will see below, play an important role in his adaptation of the traditional numerical foundation of the World-Soul. They are defined as follows:

> Therefore, numbers are rightly accommodated to the division of the world from which derive the [two] prime roots of circular numbers: the

96 *Praeter hos autem eos solidos dicebamus, qui ex deductione atque reductione numeri alicuius in seipsum efficiuntur instar molis solidae in trinam quasi producti dimensionem, ut bis duo bis, octo; ter tria ter, viginti septem; quater quatuor quater, sexaginta quatuor. CiT* XVIIII, 64^{r}, 64^{v}.

> number 5 from the odd numbers, [and] the number 6 from the even ones. We state that the number 25 is multiplied from 5 in a circular fashion, for in a way it returns from the same to the same, when 5 times 5 equals 25. Likewise, the number 125 is in a similar circle, because 5 times 25 multiplies to that sum.[97]

Circular numbers, then, are numbers whose exponential multiple ends with the same digit.

According to Ficino's *Compendium*, a perfect, beautiful, and ordered thing must be finite, and therefore the physical cosmos must have a limit.[98] Because the point, the line, the plane, and the solid exhaust the possibilities for the extensions of number into space, the cosmos is composed of their defining numbers. In explaining the diversity of Creation through number, Ficino has an interest in maintaining unity and diversity simultaneously (*pluribus unum*). In order to prove that the whole plural Creation derives from the archetypal Unity of its Creator, his cosmology makes 10 and 4 equivalents of each other and also of 1. Hence, in essence, in Ficino's *Compendium* the holy *tetractys*, the 'first figure of numbers', still furnishes a foundation for the numerical structure of the extended cosmos (fig. 2.3).[99]

In his enumeration of classes of numbers, Ficino adopts the traditional category of perfect numbers, including the number 10, symbolized by the figure of the *tetractys*.[100] Because 4 is the first number to account for the possibility of extension into a three-dimensional world, the *tetractys*, showing how all kinds of plurality emanate from unity, serves as the perfect image for the whole of Creation:

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97 *Quamobrem mundanae divisioni non iniuria accommodantur numeri, in quibus radices primae sunt circularium numerorum. Quinarius videlicet ex imparibus; ex paribus vero senarius. Dicimus autem numerum viginti quinque ex quinario in circuli morem multiplicari: quoniam ab eodem quodammodo redeatur in idem, dum quinquies quinque computatur viginti quinque. Item simili circulo numerum centum viginti quinque. Quinquies enim viginti quinque tot conficiunt. CiT* XVII, 63^{v}.

98 *CiT* XVII, 63^{v}, 64^{r}, corresponding to *Tim.* 31b–32c.

99 According to Cornford's *Plato's Cosmology: the Timaeus of Plato* (Plato 1937, 70), Theon of Smyrna, one of Ficino's main sources, enumerates ten *tetractyes* (sets of four things) which these four numbers were supposed to symbolize: numbers, magnitudes, simple bodies, figures of simple bodies, living things, societies, faculties, parts of the living creature, seasons of the year, and ages.

100 *CiT* XXXV, 74^{r}, corresponding to *Tim.* 35b.

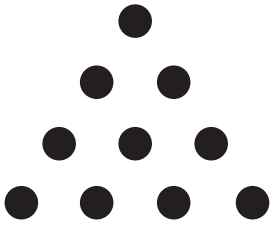

FIGURE 2.3 *A schematic representation of the* tetractys.

> Therefore, Plato thought that the double and triple [ratios] and all the other [musical] intervals [with their ratios] which are described in the first figure of numbers [i.e., the *tetractys*] are found in the spheres, and he attributed [them] to the parts and powers of the [World-]Soul, whence they were translated into the spheres.[101]

How the numbers of the *tetractys* 'were translated into the [planetary] spheres' will be analysed at 2.4.4.

To recapitulate, in his discussion of arithmetic, Ficino argues in a traditional way that the limit of the universe is determined by adding up the numbers 1, 2, 3, and 4 to obtain 10. Yet, given that late fifteenth-century musical practice makes use of the musical intervals, or harmonies, of the third (which can be expressed by the numerical proportion (5:4)) and the sixth (5:3), his arithmetic explanation reflects this development by extending the traditional Pythagorean numerical base. Following commentators such as Calcidius and Macrobius, Ficino adds the numbers 5, 6, and 7 to the foundation of Pythagorean number theory.[102] Although for the most part Ficino follows the traditional arithmetic explanation of the *Timaeus*, he does not strictly obey the limitations of the *tetractys* but tries to update Pythagorean number theory to meet the demands of late fifteenth-century musical science.

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101 *Dupla igitur et tripla et cetera intervalla in prima numerorum figura descripta, Plato inveniri arbitratus in sphaeris, ad animae partes et vires, unde in sphaeris translata sunt, retulit. CiT* XXXV, 74[r].

102 Presumably, the symbolic meaning of the numbers 5, 6, and 7 is taken from Macrobius's *Commentary on the Dream of Scipio*. See Macrobius 1952, 101–117.

2.4.2 *Music: Harmonies as Intermediaries between the Intelligible and the Sensible Realm*

At the beginning of his career, Ficino wrote on the topic of sound and hearing from an Aristotelian perspective.[103] In his *Compendium*, however, he discusses these topics from a Pythagorean-Platonic perspective.[104] Like Plato, Ficino considers the science of music as the highest of the mathematical disciplines that guide the fledgling philosopher towards a dialectical understanding of the Good.[105] Ficino's explanation of arithmetic in this treatise, which deals with number as multitude, is followed by a discussion of the discipline of music, that is, the study of relationships between multitudes, known as ratios, proportions, or harmonies.[106]

The central chapters of Ficino's *Compendium* are entirely dedicated to Plato's interpretation of Pythagorean harmonics and music theory.[107] The core belief of this theory is that numbers can be expressed by musical notes in the medium of sound and that their ratios can be judged as harmonious or consonant and, therefore, musical or not.[108] On the basis of this Pythagorean belief, he ascribes to the discipline of music the power to translate concepts from the intelligible world of pure concept into the world of sense perception.

Ficino understands music in the traditional way as both a set of perceptible sounds and a set of numerical ratios, and therefore, it is subject to two different sets of aesthetic criteria, which in his *Compendium* do not always go together. Sometimes music is judged by its appeal to the intellect, and sometimes by its effect on the ear. This ambiguity reflects the transition in Renaissance music theory from thinking in terms of number to thinking in terms of sound.[109] In this section, I will try to demonstrate that this transition is an aspect of the increasing rationalization of musical materials, which manifests itself most

103 See Kristeller 1944, 257–318.

104 For an introduction to the music theory of Ficino's *Compendium*, see Haar 1961, 343–361; Oehlig 1992, 121–141; Pennuto 2000, 217–365; and Schadel 2001, 107–178.

105 *Republic* 530c8–531d6.

106 Ficino's discussion of the mathematical discipline of music is again based on Theon of Smyrna. For the music theory of Theon of Smyrna, see Mathiesen 1999, 412–429. For an introduction to the place of music theory in Renaissance thought, see, e.g., Lowinsky 1954; Moyer 1992; Judd 2000, 2013; and Vendrix 2008.

107 *CiT* XX, 65^{r}, and XXVIII–XXXVI, 68^{r}–74^{v}. For the music theory in the *Timaeus*, see Mathiesen 1999, 792, s.v. *Timaeus*.

108 See Heninger 1974, 91ff.

109 For the Renaissance transition from thinking in terms of number to thinking in terms of sound, see Walker 2000.

clearly in the development of tonal harmony.[110] According to Gozza (2000, 60), this process of rationalization can also be described as the musical way to the Scientific Revolution. However, in line with Gouk (2002, 223–245), I will argue that what is evoked by this description—that there has been a one-way development (suggesting, in turn, a belief in historical progress)—does not adequately describe the actual process of transformation of the doctrine of the harmony of the spheres.

The debate between the two different sets of aesthetic criteria, which started in antiquity between Pythagoras and Aristoxenus, still dominates Renaissance music theory.[111] Whereas Pythagoras directed music towards a reality of intellectual forms conceived of as numbers, Aristoxenus, a student of Aristotle's, adapted it for aural perception in a reality of physical experience. As Fend (1991, 200) explains, the Pythagoreans were strictly constructionist and insisted on the mathematical purity of music. Aristoxenus, on the other hand, argued that the notes of the scale should be ultimately determined by the ear, with an adjustment of the mathematical ratios to please the sense of hearing. Even though the debate between Pythagoreans and Aristoxenians has played a continuous role in the history of Western music theory, the Pythagorean position was the dominant voice until the late fifteenth century, presumably because it corresponded with Christian metaphysics in attaching more importance to the invisible and inaudible than the visible and audible.

Ficino's music theory, first of all, can be considered an effort to align the mathematical purity of the harmonic structure of the World-Soul, as given at *Tim.* 35b–36b, with the musical practice of fifteenth-century music. Discussions of music in the sources that Ficino consulted for his commentary already considered music both as the sense-perceptible state of different sounds or different lengths of strings and as the abstract state of numerical ratios, and they discussed the discipline as partly a practical art. I will now demonstrate that whereas these traditional sources emphasize the quantitative basis of music theory, Ficino's discussion of music theory marks a major shift towards sound and its perception as the theoretical base for a music theory.

In his *Compendium* Ficino retells the old legend concerning Pythagoras's discovery of the 'key to the universe', which is the very foundation of the Western tradition relating cosmic order and music theory. From an observation made in a smithy, Pythagoras is supposed to have obtained the divine insight that consonant sound and simple number ratios are correlated: that ultimately

110 See Weber 1958 51ff., 89ff.

111 For the Renaissance revival of Aristoxenian music theory, see Palisca 1994, 189–199. For the Renaissance reception of these two different sets of aesthetic criteria, see Fend 1991.

music and arithmetic share the same numerical basis. Ficino, for his part, is convinced that the legend is true and that the basic consonances of the tuning system were revealed to Pythagoras (whom Ficino considered one of the *prisci theologi*), and because of this revelation, these consonances were named after him.[112]

Yet Ficino retells the story of Pythagoras and his discovery in a way that significantly transforms the long-standing and widely accepted tradition of music as one of the disciplines of the quadrivium. In accordance with Macrobius, a prominent source for the story in all its detail, Ficino begins by stating that Pythagoras had determined the proportion between the notes on the monochord when he passed a blacksmith's shop one day and heard that the strokes of several hammers of different weight pounding the anvil produced harmonious sound.[113] Ficino follows the tradition by mentioning that Pythagoras made this chance discovery through empirical observation. Pythagoras verified his discovery through an experiment on his monochord, comparing the weights of the different hammers with the lengths of string, to conclude that the proportions between the weights of the hammers which generated the basic consonances were in accordance with the proportions of different lengths of string.

It is remarkable that Ficino does not dwell on the importance of Pythagoras's discovery of the numerical base of musical intervals, traditionally seen as the discovery of the very 'key to the universe'.[114] Instead, he immediately focuses on one of the inherent problems of the Pythagorean tuning—namely, that there cannot be a mathematically exact semitone, because the ratio 9:8 has no rational square root:[115]

> They say that Pythagoras, after he had observed at the blacksmith's that consonance results from the blows of hammers in proportion to their different weights, registered the numerical ratios by which regular order persisted in the diversity of the different weights. Then he stretched strings with as many different weights attached as the various weights of the hammer he had studied. And on this basis he could clearly establish

112 In this belief, Ficino's follows Macrobius, *Commentary on the Dream of Scipio* II.i.8 (Macrobius 1952, 186), and similar works.

113 *CiT* XXXII, 71^{v}, corresponding to Macrobius's *Commentary on the Dream of Scipio* II.i.8–13 (Macrobius 1952, 186–188).

114 For a full discussion of music-theoretical terms used in the Pythagorean tradition, see Boethius 1989.

115 The following passage is an almost verbatim reproduction of Macrobius, *Commentary on the Dream of Scipio* II.i.21 (Macrobius 1952, 188–189).

> that, from the string which was stretched beyond another in a 9:8 ratio, he could discern the tone, that is, the full and complete sound, corresponding with the (musical) ratio 9:8. However, he could not divide a tone into two equal semitones, because the number 9 cannot be divided into two equal parts either.[116] But he found that one of the semitone[s] certainly was a little larger than a half [of the whole tone], and the other a little smaller. [The difference, or 'comma',] between the small and bigger semitone he called a 'diesis', but Plato called it a 'limma'.[117] The difference between the minor semitone and a real semitone, which is the exact half of the whole tone [9:8], Plato determines as the difference between the numbers 243 and 256. . . . Subsequently Pythagoras . . . arrived at the first numerical elements of consonance.[118]

Despite the emphasis on this mathematical difficulty in his account of the famous legend, Ficino still firmly believes that by his analysis of the relationship between number and sound, Pythagoras made intelligible to man on Earth the divine harmony of the universe, thereby providing a celestial pattern for the ordering of the human art of music. Nevertheless, other traces can be found in Ficino's *Compendium* of his awareness that in using this insight to construct a scale of notes for tuning an instrument in his own time, several problems arise. Yet because his main project is to defend the *Timaeus* and to make it up to date for his own time, Ficino does not address these problems

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116 Ficino repeats this observation in *CiT* XXXVI, 74^{v}.

117 In the most literal sense a 'comma' in music is a tuning error. The 'diesis' or 'limma' Ficino refers to in this passage is a music-theoretical term indicating the syntonic comma, that is, the difference between two semitones when a whole tone with the proportion 9:8 is divided into two halves. Given the fact that a whole tone mathematically cannot be divided into two equal halves, one ends up with one semitone which is a comma larger than the other. See Barbour 1951, ix–xii.

118 *Pythagoram ferunt, cum apud aerarios fabros annotavisset, ex malleorum ictibus consonantiam lege ponderum provenire, collegisse numeros, quibus sibi consentiens diversitas ponderum continebatur; deinde tetendisse nervos tam variis ponderibus alligatis, quam varia in malleis fuisse didicerat, atque hinc manifeste consideravisse, ex nervo, qui super alium sesquioctava ratione protendebatur adversus alium discerni tonum, id est plenum integrumque sonum, qualis erat novem ad octo proportio. Neque potuisse tonum in duo hemitonia inter se aequalia distribuere, quando neque novenarius in partes duas secaretur aequales. Sed invenisse hemitonium alterum quidem esse paulo maius dimidio, alterum vero paulo dimidio minus, quod ille diesim, Plato limma vocavit. Quantum vero deficiat hemitonium minus ab integro tono et a vero hemitonio, Plato in intervallo horum indicat numerorum, scilicet inter ducenta quadraginta tria atque ducenta quinquaginta sex. . . . deinde Pythagoras . . . constare, atque ita prima consonantiae adeptus est elementa. CiT* XXXII, 71^{v}.

explicitly. He implicitly inserts contemporary ideas about tuning and temperament into the musical treatise included in his *Compendium* in the belief that ultimately they will be compatible with traditional ones.

After his introduction of Pythagorean music theory, Ficino presents traditional Pythagorean music-theoretical lore about the three types of proportions and their characteristic means.[119] In order to understand the harmonic structure of the cosmos, a philosopher must be able to calculate the mean between two terms in each of these three types of proportion, known as the extremes. First of all, the simplest mean is the arithmetic one, where each term in the progression differs from its immediate antecedent by a constant amount, as in the following series of numbers, for example: 2, 4, 6, 8, and 10. Second, Ficino deals with the geometric proportion, where each term in the progression differs from its immediate antecedent by a constant ratio, as in, for example, the series 1, 2, 4, 8, and 16. Finally, he analyses the harmonic proportion, where the terms in a progression are related by the ratio of the differences between adjacent terms, as in, for example the series 3, 4, and 6. The first mean is defined as follows:

> The arithmetic [mean] consists in the parity of number: thus, 5 is the mean between 3 and 7, because it exceeds and is exceeded by the same number, namely, 2.[120]

In contrast to the arithmetic mean, which relates to both its extremes by a constant amount, the geometric mean relates to both its extremes by a constant ratio:

> The geometric [mean] exists in the equality of the ratio, in which the multiple and the superparticular [proportions] are.[121] [This proportion occurs] when we compare the proportion between 3 and 9 with [the one between] 9 and 27, for in each case the proportion is triple. Again the ratio of 9 to 6 is the same as that of 6 to 4, for each is the *sesquialtera* proportion [i.e., 3:2].[122]

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119 Ficino's definitions of the arithmetic, geometric, and harmonic proportions are based on the definitions of Theon of Smyrna. See Etienne 1998, 265–276; and Mathiesen 1999, 427.

120 *Arithmeticam in numeri paritate consistere. Sic inter tria et septem medius est quinarius, numero eodem scilicet binario alterum terminum superans, ab altero superatus. CiT* XXX, 70^{r}.

121 A multiplex ratio is the ratio $nx : x$; a superparticular ratio is the ratio $x + 1 : x$.

122 *Geometricam vero in rationis aequalitate sitam esse, in qua sunt multiplex atque superparticularis. Quando vel ita comparamus, sicut se habent tria ad novem, ita novem ad septem*

Even more complex is the procedure for finding the harmonic mean between two extremes, where the mean is related to the extremes by the ratio of the differences between three adjacent terms:

> The harmonic [mean], finally, they place in a relationship in which, with three terms posited in order, just as the biggest term relates to the smallest, so the greater difference between the terms relates to the lesser difference, for if one takes 3, 4, and 6, the difference between 6 and 4 is 2, [and] the difference between 4 and 3 is 1; and just as between 6 and 3 a double proportion [i.e., 2:1] exists, so too there is a double proportion between 2 and 1. There is another relationship in force here, that is, of proportions: for the mean surpasses and is surpassed by a like proportion of the extremes [3 and 6 in the proportion 3:4:6]. For [in the proportion 3:4:6] 4 is exceeded by 6 by a third part [i.e., 2] of 6 but exceeds 3 also by a third part of 3 [i.e., by 1].[123]

In *Tim.* 35b–36b, Plato constructed a scale on the basis of the Pythagorean numerical relationships. His strategy was to take any note and produce another related to it by simple whole-number ratios, in the confidence that, according to Pythagorean principle, the resultant note would sound consonant. The Pythagorean scale is a diatonic scale which acknowledges first of all the three primary consonances, the octave (2:1), fifth (3:2), and fourth (4:3), and is completed by using the whole-tone intervals (9:8) and subsequently the semitone intervals (256:243) to fill in the gaps in the scale.[124] In sum, the Pythagorean cosmic scale depends upon a special set of simple relationships between the numbers 1, 2, 3, and 4. It produces a scale of eight tones or notes, sometimes referred to as the '*Timaeus* scale'.[125] It can be characterized, moreover, by these arithmetic, geometric, and harmonic proportions.

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atque viginti; nam utrobique tripla. Item quod est novenarius iuxta senarium, idem est senarius iuxta quaternarium; nam et hic et ibi est proportio sesquialtera. CiT XXX, 70v.

123 *Denique proportionem harmonicam in quadam similitudine collocant, per quam tribus terminis in ordinem positis, sicut maximus terminus aspicit minimum, similiter differentia inter terminos maior minorem respicit differentiam. Si enim ponas tria, quatuor, sex: differentia inter sex et quatuor est binarius; differentia inter quatuor et tria, unitas; sicut autem inter sex et tria dupla ratio est, ita inter duo et unum est ratio dupla. Viget hic altera quoque similitudo, scilicet portionum; simili namque extremorum portione medius terminus excedit atque exceditur. Quaternarius enim superatur a senario per tertiam senarii partem, superat quoque ternarium tertia ternarii parte. CiT* XXX, 70v.

124 For the history of tuning and temperament, see, e.g., Barbour 1951; Lindley 1987, 109–331; and Lindley and Turner-Smith 1993.

125 *CiT* XXXII, 71v.

Ficino explains that the concordant intervals of the scale are determined as proportions between the component numbers of the *tetractys*. As mentioned above, the number 10 defines the limit of the physical cosmos, and Ficino explains that therefore only proportions between its component parts were traditionally considered natural. Since 1 + 2 + 3 + 4 = 10, the possible proportions reflecting the archetypal harmonic structure of the cosmos are 2:1, 3:1, 4:1, 3:2, and 4:3. The double proportion 2:1 clearly defines the octave, or diapason, which was traditionally defined as the archetypal unit in the mathematical continuum.[126] In contrast with the traditional explanation of the archetypal diapason, however, Ficino places himself in the line of music theorists who are less dogmatic: "Pythagoras has forbidden us to proceed beyond the diapason, but Ptolemy, in certain cases, admits this".[127] What is true of the archetypal diapason is extended in Ficino's *Compendium* to include other diapasons determined by the triple (3:1) and quadruple (4:1) proportions.

The Florentine's analysis of the diapason, or cosmic octave, finally results in a scale in which the first octave is composed of two disjunct tetrachords (i.e., groups of four adjacent tones), shown in figure 2.4 with the numerical proportions indicated above and below the staff.

FIGURE 2.4 *The first octave of the Timaean scale in the ratios of Pythagorean tuning.*

Subsequently, Ficino demonstrates the Pythagorean tuning system by means of a monochord, that is, a single string which can be stopped at any point with a movable bridge, so that the notes are indicated as intervals on a single

126 Mathiesen 1999, 418–419.

127 *CiT* XXXII, 71^{v}, corresponding to Ptolemy's *Harmonics* 12.4. See Ptolemy 2000, 18.

linear quantity.[128] To analyse the diapason, Ficino first of all deals with the proportions 2:1 (diapason), 3:2 (diapente), and 4:3 (diatessaron).[129] To produce them on a monochord, he explains that they are traditionally turned into ratios with a common denominator (12:6, 9:6, and 8:6), and subsequently, the resulting fixed intervals are marked on the scale (fig. 2.5).[130]

That Ficino has to take pains to adapt the Timaean doctrine of cosmic harmony to the demands of his time, and that parts of this theory do not make sense to him anymore, can be illustrated by his remark on the higher numbers alongside the lower parts of the legs of the diagram he borrowed from Plutarch and Calcidius (fig. 2.5). He decides to leave this part of the explanation of musical ratios and proportions out of his own explanation because "what aspects

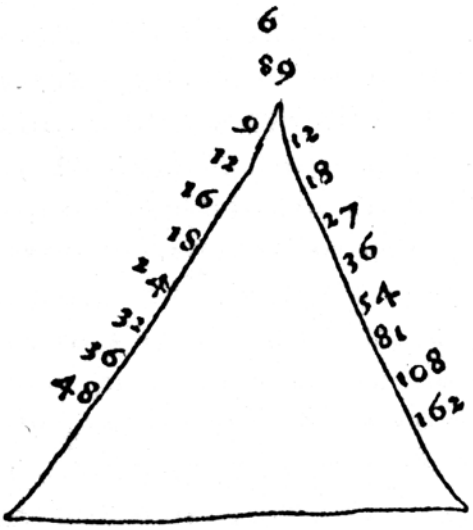

FIGURE 2.5 *An illustration in Ficino's* Compendium *of the geometric series of numbers of the World-Soul derived from the number 6.*

128 This is a common practice of establishing the main consonances in music theory and is found in many sources, such as Calcidius's *Timaeus* commentary, that were known to Ficino. See Calcidius 2003, 186–197.

129 *CiT* XXXII, 71^{v}, 72^{r}.

130 *CiT* XXXVI, 74^{v}, corresponding to table 8 in Caldicius 2003, 786.

of the World-Soul Plato intends to explain by this figure by means of the bigger numbers seems not yet to have been satisfactorily explained by the Platonists".[131] Neither does the Florentine presume that the key to the universe will ever be found by solving this interpretative problem.

Ficino continues his discussion by explaining that the ratio 12:6 exemplifies the proportion 2:1, the diapason itself. The ratio 9:6 and the ratio 12:8, moreover, are instantiations of the proportion 3:2, the sesquialteral proportion determining the interval known as the diapente, the fifth. The ratio 8:6 and the ratio 12:9 exemplify the proportion 4:3, the sesquitertial proportion determining the interval known as the diatessaron, the fourth. Subsequently, he explains that two connected proportions based on these two ratios emerge: an arithmetic proportion 6:9:12 and a harmonic proportion 6:8:12. Furthermore, given that 9 as a mean is in a sesquialteral proportion to 6 (6:9 = 2:3) and in a sesquitertial proportion to 12 (9:12 = 3:4), and 8 as a mean is in a sesquitertial proportion to 6 (6:8 = 3:4) and in a sesquialteral position to 12 (8:12 = 2:3), the diapason (octave) is always composed of a diapente and a diatessaron, regardless of whether 8 or 9 is used as the mean.

The difference between the two possible means (9 and 8) of the diapason assumes central importance in Ficino's interpretation of the harmonic design according to which the Demiurge at *Tim.* 35b–36b had made the planetary circles. The fact that the octave cannot be divided into two equal halves traditionally has made music particularly useful in demonstrating that cosmic principle 7, *concordia discors*, is active in the whole cosmos.[132] The diapason can, as we have seen above, be divided by the interval of either the diatessaron (resulting in the harmonic mean 8 inserted between 6 and 12) or the diapente (which results in the arithmetic mean 9 inserted between 6 and 12). In either instance, the result, though composed of unequal parts, is harmonious. In consequence, the diapason can be said to harmonize two discordant parts of the cosmos, and music therefore is a demonstration of cosmos. In sum, in Ficino's *Compendium* the Pythagorean scale is still conceived of as a precisely delineated structure composed of discrete parts which are harmoniously arranged in a fixed order. It may now be alleged that Ficino in his restatement of the famous legend of Pythagoras in the blacksmith's shop presumably intended to emphasize the 'cosmic miracle' of *concordia discors*, but no direct proof of this proposition is given in his *Compendium*.

131 *Ceterum quid nam sibi velit in anima figura haec per ampliores numeros explicata nondum satis videtur a Platonicis explicatum. CiT* XXXVI, 74^{v}.

132 *CiT* XXX, 70^{v}. For Ficino's cosmic principles, see 2.3.2 above.

Despite some interpretative errors and insecurities, in terms of music theory Ficino correctly hands down the construction of the Pythagorean scale. Using the interval of the tone as a measurement, he explains that one has to insert two notes between the points represented by 6 and the points represented by 8, thereby completing a tetrachord, that is, a segment of four notes in a concordant proportion. Similarly, one can insert two notes between the point represented by 9 and the point represented by 12, completing a second segment of four notes in a concordant proportion. The two tetrachords placed in conjunction finally produce the consonant diapason of eight notes. This octave in the Pythagorean tuning system is referred to by Ficino as the 'heptachord of Terpander'[133] or as the 'eight-stringed celestial lyre of Apollo'.[134]

Whereas Ficino paid attention in his account of the legend of Pythagoras to the Pythagorean comma ('diesis' or 'limma'), which lies at the very root of the contradiction inherent in the Pythagorean scale, he ignores the problems this comma caused for the musical practice of the late fifteenth century.[135] Yet the music theory of his *Compendium* evinces a certain awareness of the problem that many of the intervals produced by the numbers of the World-Soul are far from simple.[136] What started in the *Timaeus* as a system of consonances involving only small whole numbers turns out to be less simple than it initially had appeared. For example the semitone (256:243), the major third (81:64), and the major sixth (27:16) all involve relatively large numbers.

Because musical intervals were conceived of as melodic intervals until the early Renaissance, the intervals involving large numbers were simply defined as discordances and dissonances. In Ficino's time, however, polyphonic music had started to develop, and in addition to the harmonic use of octaves, fifths, and fourths—hitherto, the only harmonic intervals generally defined in a music-theoretical treatise—there was a gradual adoption of thirds and sixths. The use of these intervals involved a modification of the Pythagorean tuning in which the third (81:64) became slightly flattened to 80:64, or 5:4, and the sixth

133 *CiT* XXX, 69^{v}, and XXXII, 72^{r}.

134 *CiT* XXVIIII, 69^{v}. See Haar 1974, 7–22.

135 In music, when ascending from an initial low pitch by a cycle of justly tuned perfect fifths (diapente 3: 2), leaping twelve times, one eventually reaches a pitch that is approximately seven whole octaves (diapason 1: 2) above the starting pitch. If this pitch is then lowered precisely seven octaves, the resulting pitch is a little higher than the initial pitch. This microtonal interval is called a Pythagorean, or ditonic, comma. See Rasch 2002, esp. 201.

136 Ultimately, these problems will lead to Vincenzo Galilei's discovery that Pythagoras's discovery could not be proven by experiments, as will be discussed at 4.3.2.

also became slightly flattened, from 27:16 to 25:15, or 5:3. At the same time the fourth as a harmonic interval experienced devaluation.[137]

As Haar (1961, 355–357) first observed, these changes are reflected in the musical thought of Ficino's *Compendium*. While the octave and fifth are still judged as primary consonances, Ficino observes that the fourth "in the sense of hearing is not appreciated as a consonance in its own right".[138] Yet instead of expelling the dissonant fourth from the series of primary consonances, Ficino uses one of his interpretative strategies to reconcile the traditional Pythagorean lore of the *Timaeus* with the musical practice of his own time. He argues that the fourth can still be accepted because "if one adds a tone to it, it becomes the very graceful consonance of the fifth".[139] In addition, there is evidence in the *Compendium* that Ficino recognizes the third and the sixth as primary consonances. In his opinion, these intervals are present in the diatonic scale to temper "with their more delicate sweetness" the dissonance of the second and seventh tones of the scale.[140] Ficino might be speaking here of melodic intervals, of course. But in my view, Haar (1961, 355) argues correctly that given the backdrop of the contemporary musical practice in which the Florentine was actively involved, he more likely had harmonic intervals or chords in mind.

Further evidence can be found in Ficino's *Compendium*, as well as in his letter *De Rationibus Musicae* (*On Musical Ratios*)—to which he refers in his commentary—that he accepted the contemporary modifications of the Pythagorean scale that incorporated the more consonant harmonic intervals of thirds and sixths.[141] For example, the extension of the *tetractys* with the numbers 5, 6, and 7—as analysed at 2.4.1—can be interpreted as a contribution to the formulation of an alternative arithmetic basis for the intervals which were accepted as consonances in the music theory and practice of his own time.
It may now be concluded that Ficino retained the Pythagorean ratios for the octave, fifth, and fourth (4:3:2), but at the same time he tried to reconcile this

137 It is an irony of history that Franchinus Gaffurius, who possessed a copy of Ficino's *Compendium*, used it to defend the principles of traditional Pythagorean music theory, while Ficino himself was much less dogmatic in these matters. See Kinkeldey 1947, 379–382.

138 *Meminisse vero oportet diatessaron, id est compositionem sonorum quatuor ad quartam altitudinem ascendentium per se quidem auditam non approbari. CiT* XXXII, 71^{v}.

139 *. . . recipi tamen ex eo libenter, quia facile tono addito fit diapente gratissima vocis quintae concordia. CiT* XXXII, 71^{v}.

140 *CiT* XXXIII, 73^{r}.

141 For Kristeller's edition of this letter, see Ficino 1973, 51–56; for Farndell's English translation, see Godwin 1993, 163–169.

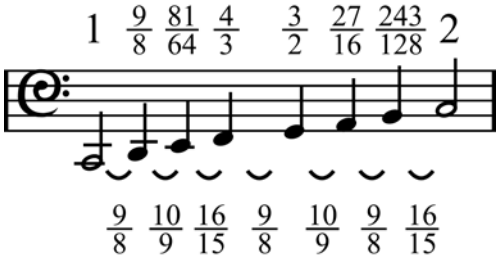

FIGURE 2.6 *The first octave in the ratios of just intonation.*

traditional music-theoretical dogma with a formalization of the earlier, ad hoc modification of the Pythagorean tuning by accepting the ratio 5:4 for the major third and the ratio 5:3 for the major sixth. The scale he tries to fuse with the Pythagorean scale is not invented by him but is in fact the syntonic diatonic scale of Ptolemy, which towards the end of the fifteenth century became the basis for 'just intonation'—that is, a temperament of the Pythagorean scale (fig. 2.6).[142]

Several new intervals are produced by this scale. For instance, while there are Pythagorean whole tones (9:8) for the intervals C–D, F–G, and A–B (major tones), there are also narrower whole tones (minor tones) of 10:9 for the intervals D–E and G–A in order to arrive at consonant thirds and sixths.[143]

By creating the impression that just intonation, which in Ficino's time was formulated as a quite radical alternative for the Pythagorean tuning, was already present as an undeveloped possibility in the harmonic series of the World-Soul, Ficino is again applying one of his interpretative strategies to defend Plato.[144] His belief in history as a process of continuous revelation of ultimate truths seems to have encouraged him to think that if Plato had lived

142 The syntonic diatonic tuning system which is the basis of the just intonation system is described for the first time in Ptolemy's *Harmonics*. The ratio of the intervals 9:8 and 10:9, the extent to which they are different tones, is called the 'syntonic comma', expressed as the ratio 81:80. See Solomon 2000, 101–102.

143 See Barbour 1951, 89–106.

144 For these strategies, see Hankins 1990, 347–359.

in the fifteenth century, he would certainly have discussed the structure of the World-Soul in the numerical terms of the just intonation system rather than the terms of Pythagorean tuning.

Within a single scale, the syntonic diatonic scale and the just intonation system associated with it formed a reasonably satisfactory solution to the problems that Pythagorean tuning posed for fifteenth-century musicians, but the compromise broke down when they wanted to transpose the scale (i.e., play in another key), a musical practice that became increasingly common in the sixteenth century, as will be discussed at 4.3.2.

2.4.3 *Geometry: Cosmic Harmony Expressed in Terms of Continuous Quantity*

In his discussion of the way in which all things in nature possess a structure derived from the harmonic structure of the four elements, Ficino briefly brings up geometry, the third mathematical discipline used to explain cosmic order.[145] As in antiquity and the Middle Ages, geometry dealing with the physical extension of numbers (i.e., with numbers having dimensions) still has a place in Ficino's cosmology. It may be the case that Ficino's summary treatment of geometry reflects only the unfinished state of his *Compendium*. Yet in this section I will argue that it could alternatively be interpreted as an indication that the fifteenth-century philosophy of nature had begun to drift away from the traditional mathematical, or 'numerological', science of the quadrivium, as also happened in the discipline of music.

Ficino's account of continuous quantity is based on the traditional definitions of the discipline of geometry, where a geometric point corresponds to the number 1 with extension in space, a line to the number 2, a surface to the number 3, and a volume to the number 4.[146] The elements of geometry (point, line, plane, and volume) evolve from God's absolute Unity, the highest principle of the cosmos, as stages in an orderly process.[147]

Ficino closely follows *Tim.* 31b–32c in his explanation of how the Demiurge, whom he equates with the biblical God, began to construct the body of the cosmos from fire and earth. From fire, the cosmos received its visibility; and from earth, its solidity.[148] His discussion begins with a quotation from *Tim.* 31b, where Plato argues that the two extreme elements of fire and earth cannot

145 *CiT* XXXXIIII, 87r.

146 See Heninger 1974, 104–115.

147 *Tim.* 53b–57d.

148 *Tim.* 31b–32c, corresponding to *CiT*, XVIII, 64r.

communicate with each other. To achieve an interaction between the elements of fire and earth, it is necessary to place two means between them, thus obtaining the four terms necessary to account for their conceptual mathematical structure as solids. Between fire and earth, the two extremes in the physical arrangement of the four elements, God placed two means: the intermediary elements of air and water. Consequently, two interconnected series of three terms were each devised, in which the bonds between the elements became simple arithmetic means.[149] Through the insertion of air and water, the two extremes of fire and earth were reconciled in a four-part system:

> Yet we are not disputing the fact at this point that [Plato] evidently posits two means, as it were, between fire and earth: namely, air and water. He demonstrates by the use of numbers and dimensions, which in some way come before natural bodies, that there is a need for at least two means between entirely contrary bodies.[150]

Next, Ficino explains that Plato defines the relationship between two adjacent elements in terms of a common quality in nature.[151] Using a traditional figure, he demonstrates that the elements can be arranged on the basis of their contrary substances, powers, and activities.[152] In fact, every pair of conceptual opposites is a pair of natural contraries as well: fire and water, earth and air, dry and moist, hot and cold, strong and weak, and mobile and immobile. In this way, each element is connected to every other element. Each element, more-

149 The proportions between the elements are as follows: fire : air = air : water; air : water = water : earth; fire : air = air : water = water : earth.

150 *Sed ponat manifeste duo, neque enim nunc id contendimus, ceu inter ignem et terram, duo quaedam, aerem scilicet atque aquam. Opus autem esse duobus saltem mediis inter contraria omnino corpora, ostendit ex numeris atque dimensionibus, quae naturalia corpora quodammodo antecedunt. CiT* XVIII, 64r.

151 For example, in the series air : water = water : earth, air and water share the quality 'moist', while water and earth share the quality 'cold'.

152 In the 1576 edition of Ficino's *Timaeus* commentary, this system is represented in a diagram that is not printed in the 1496 edition (*CiT* XXIII, 1447). The diagram illustrates the conceptual reality of the four elements: their qualities, their mutual sympathies and antipathies, and their incorporation into a single stable system.

Element	*Substance*	*Power*	*Activity*
fire	rarefied	strong	mobile
air	rarefied	weak	mobile
water	dense	weak	mobile
earth	dense	weak	immobile

over, reconciles the opposites of two other elements, thereby exemplifying cosmic principles 5, 6, and, above all, 7 (discussed above at 2.3.2).

Plato intended to arrange the four basic qualities out of which the cosmos is built in a way that would explain the generation of the four elements. His theory of the harmonic structure of the four elements is theoretical in essence, devised to demonstrate the autonomous existence of the elements and yet to allow their transmutation into each other. In his interpretation of the way in which the universe was brought into harmoniously ordered, albeit partly transient and dynamic, being by means of proportion (*Tim.* 32c), Ficino frankly admits that he does not fully understand how the physical extension of numbers must be understood. As for cosmic harmony in geometric terms, he admits that "all these things, in a Pythagorean way, are cloaked in obscure metaphors".[153]

In order to clarify this rather obscure Pythagorean doctrine, Ficino introduces an interpretation originating from the commentaries of Iamblichus, Syrianus, and Proclus, who explained how the fourfold structure of the elements in the physical world could be characterized in terms of physical extension of numbers, ratios, and harmonies. At the risk of "being long-winded and introducing an innovative interpretation", Ficino summarizes their view as follows:

> Likewise, [Iamblichus, Syrianus, and Proclus] argue that the intellectual Mind itself and the Jovial Creator of the world, during the process of creating the world, looked up at the intelligible and highest Mind as their archetypal model, and to the Good as their purpose. And just as in the intelligible world, that is, in that which they call 'being itself' and 'living itself', principles and ideas of a fourfold nature are active, so the world is likewise divided into four regions: the first [region] extends from the first heaven and thereafter through the sphere of fire to the beginning of [the spheres of] air; the second [region] from there to the middle air; the third [sphere] from there to the Earth; but the fourth actually is the [sphere of] Earth. And to this kind of partition correspond in each region four hosts of rational inhabitants: namely, the world gods, the angels, then the demons, and finally the individual souls.[154]

153 *. . . sed haec ferme omnia Pythagorico more sub obscuris metaphoris involvuntur. CiT* XXXXIIII, 79r.

154 *Item mentem ipsam intellectualem iovialemque mundi opificem in fabricando mundo suspicere in mentem intelligibilemque atque supremam velut exemplar, et in bonum veluti finem. Et qua ratione in mundo intelligibili quod et ipsum ens ipsumque vivens nominant; prin-*

As Kristeller (1943, 174) recognizes, the exposition of the four elements in the *Timaeus*, both in the original wording and in the interpretations of its commentators, obtains a prominent place in Ficino's philosophy.[155] The whole world, including its four elementary spheres with their inhabitants, is defined in this passage in terms of the fourfold harmonic structure of being. Yet the Florentine seems to pass over a musical interpretation of the four elemental spheres in the cosmos which had crept into the tradition of the harmony of the spheres. In both Platonic and Aristotelian cosmology, the four elements in their pure form occupy spheres between Earth and the sphere of the Moon. They might thus be thought to move, or at least to be touched by, the moving orbit of the Moon. In some ancient and medieval planetary scales, musical notes were attributed to the elements on this ground, but for Ficino the attribution does not make sense. As a corrective to this unfounded belief, he returns to the discussion of the harmonic structure of the four elements in the *Timaeus* itself.

In order to define world harmony in geometric terms, Ficino uses cosmic principles 5, 6, and 7. In this context, the principles signify that opposed elements in the cosmos do not directly touch each other but are bound together by a gradual sequence of intermediate qualities. Hence, cosmic order refers to a homogeneous succession of all its parts, determined by a beginning, a centre, and an end. Translated into harmonic proportional terms, cosmos can be defined as a structure having two extremes and a (double) mean. If the beginning and the end agree in some respect, the centre cannot disagree with them in the same respect, because otherwise the entire succession would fluctuate and would not proceed steadily in one direction. Given these cosmic principles, Ficino argues, with Plato, that wherever there are contrasts or sharp differences in the series of being, intermediary elements must exist.

From his study of the discussion of geometry in the *Timaeus* Ficino finally draws the conclusion that the four elements of the cosmos can best be defined in terms of geometric and harmonic, or musical, ratio:

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cipia et ideas suscipit naturae quadruplicis, in quatuor similiter plagas digerere mundum, quarum prima a primo caelo postque caelum per ignis sphaeram usque ad aeris principium protendatur; secunda inde ad aerem usque medium; tertia inde ad terram; quarta vero sit terra; atque huiusmodi partitioni quatuor in qualibet plaga respondeant exercitus rationalium habitantium, deorum scilicet mundanorum; item angelorum, deinde daemonum; postremo particularium animarum. CiT XXI, 65r.

155 For Ficino's view of the harmonious composition of the cosmos from the four elements, see also *TP* 3.2.1–2 in Ficino 2001–2006, 1 (2001): 230–237.

> All Pythagoreans and Platonists think that the whole cosmos is composed from these four elements joined together according to a geometric and to a musical ratio—yet, I say, in such a way that their consonance never allows any dissonance in the heavens. Beneath the heavens, however, a certain dissonance occasionally appears somewhere; but it is at once restored to a consonant form by the higher concord in a marvellous way. That these elements exist under the Moon no one will deny.[156]

Notwithstanding his interest in natural phenomena, Ficino in his philosophy of nature argues deductively from principles in the Mind of the Creator to the structure of the created world. The reconciliation of contrast by intermediary terms is first considered as an idea in the Mind of the Creator, which thereafter is observed in the world of intermediary beings and finally also in the sensible world. This results in a fourfold structure of elemental spheres with their inhabitants, which corresponds to the four elements in nature on Earth.[157] Hence, between fire and earth, there must be air and water, just as between God and man, there must be the intermediary beings of demons and angels.[158] As Kristeller (1943, 102) and Allen (1999, 122) argue, angels, demons, and the spirits of the heavenly bodies are an essential part of the cosmos, because they guarantee cosmic order as well as a structure for communication between God and the individual souls of men.

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156 *Ex his quatuor elementis geometrica et musica invicem ratione coniunctis universum mundum esse compositum Pythagorici Platonicique omnes existimant; ita tamen, ut consonantia horum in caelo nullam, inquam, dissonantiam patiatur. Sub caelo autem dissonantia quaedam alicubi priori videatur interdum, sed statim per superiorem concentum in formam consonantem mirabiliter redigatur. Esse utique elementa haec sub luna, nemo negabit. CiT* XXIIII, 66r.

157 *Tim.* 40–41, corresponding to *CiT* XXXXI. The picture of the inhabited spheres of the cosmos, which Ficino gives in the passage quoted above, can be represented schematically in the following way:

Region of the cosmos	*Element*	*Living inhabitant*
first ethereal heaven	fire	gods of the world
second heaven of the zodiac	air	angels
middle of the cosmos	water	demons
Earth	earth	individual souls

158 For an introduction to the place of demons in Ficino's musical cosmos, see Walker 1958, 3–72. The idea that in the harmonic cosmos the extremes of God and man are mediated through a mean—that is, the intermediary being of demons—is strongly present in the writings of Ficino's predecessors. Ficino borrowed much of what he wrote on demons in his *Compendium* directly from Iamblichus, Plotinus, Calcidius, and Proclus.

In sum, how the four elements are "joined together according to a geometric and to a musical ratio" functions as a fundamental analogy in Ficino's view of world harmony, be it on a metaphysical or on a physical level. Yet precisely because it is impossible to conceive of a structural or functional difference between the four elements in nature and the four elementary spheres with their planetary spirits and demons, Ficino's divine geometrical method is deemed impracticable for a philosophy of nature by some of his contemporaries. In addition, his interpretation of the doctrine of the harmony of the spheres, which is based on his view of geometry, runs up against all kinds of trouble, as I will discuss at 2.5.3.

In his explanation of the discipline of geometry, Ficino finally also addresses the theory of the regular solids at *Tim.* 53c–55c.[159] He explains that a regular solid is a three-dimensional form with all its faces and its angles equal. He closely follows *Tim.* 53c–55c when he explains that there are only five perfect solids: the cube, with four square faces; the tetrahedron (triangular pyramid), the octahedron, and the icosahedron, with, respectively, four, eight, and twenty triangular faces; and finally the dodecahedron, with twelve pentagonal faces. Subsequently, four of the perfect solids are associated with one of the four elements: the tetrahedron with fire, the octahedron with air, the cube with earth, and the icosahedron with water. In addition, the dodecahedron is assigned to the heavens in their entirety, approximating ether as the fifth 'quintessential' element:

> And he [i.e., Plato] holds that the pyramidal shape matches with fire, because it is subtle and is more suitable for cutting than the other [solids], and it is constituted from fewer triangles and, therefore, is the lightest of all shapes. The shape of the cube matches with earth, because it is the most solid and most stable shape. The other [Platonic] shapes match with the intermediary elements [of air and water], because in motion and rest they occupy an intermediary position between fire and earth. One has to consider that the dodecahedron, which possesses twelve faces, matches with the universe, because of the twelve spheres and twelve signs in the zodiac. Euclid argues convincingly that only five solids can be inscribed inside a sphere, namely, those which touch the sphere at each vertex and have equal lines and angles: the pyramid, cube, octahe-

159 *Tim.* 57c–d, corresponding to *CiT* XXXXIIII, 78^{r}–79^{r}.

> dron, dodecahedron, and icosahedron. . . . Whereas Plato defined the five solids as five worlds, Euclid[160] defined them as five forms.[161]

Against the backdrop of the seven ultimate principles of Ficino's philosophy, given above at 2.3.2, a correlation can be found between the properties of the regular solids and the elements. The thinness of the tetrahedron (pyramid) is associated with the complexion of fire; while the cube is assigned to earth because it conveys an impression of stability (fig. 2.7). The octahedron traditionally represents an image of mobility which is associated with air, the most mobile element, while the globular form of the icosahedron, the figure with the largest number of faces, suggests a drop of water. Finally, the dodecahedron is left for the heavens in their entirety because it has the same number of faces as the celestial zodiac has signs. It is envisaged as the most comprehensive of all regular solids, just as the heavens embrace all things.[162]

Identification with the four elements gave the regular solids a strong influence on ancient and medieval cosmological speculation. In medieval musical treatises the equation of the four sublunary elements with the four primary regular solids, which are harmoniously ordered by numerical proportions, led to a complex theory in which the elements were linked with the four seasons, the four humours, and the four tones of the tetrachord.[163] Yet this does not

160 Ficino refers here to *Tim.* 55c–d and Euclid's *Sectio Canonis*, or *Elements*. See Proclus 1992. Presumably, Proclus's *In Euclidem* (*Commentary on Euclid's Elements*) was Ficino's source.

161 *Et pyramidalem quidem figuram ideo convenire vult igni, quia tenuis, et ad incisionem prae ceteris apta, ex paucioribusque triangulis constituta; ideoque omnium levissima figurarum. Figuram vero cubicam terrae, quia solidissima atque stabilissima sit. Figuras alias mediis elementis, quoniam ad motum atque statum inter ignem et terram, medio modo se habent. Duodecaedram, quae duodecim facies habet, congruere putat mundo propter sphaeras duodecim, ac signa duodecim in Zodiaco. Euclides probat intra sphaeram figuras solum quinque describi posse, quae tangant utrinque sphaeram habeantque lineas et angulosque aequales, scilicet pyramidem, cubum, octaedrum, dodecaedrum, icosaedrum. . . . Tres aliae facies habent triangulares. Plato igitur ubi nominavit quinque mundos, allusit ad has quinque figuras. CiT* XXXXIIII, 78v.

162 See Heninger 1974, 107–108.

163 This scheme of correspondences is found, for example, in the music theory of Aristides Quintilianus:

fire	= tetrahedron	(4 angles)	= summer
air	= octahedron	(8 sides)	= spring
water	= icosahedron	(12 angles)	= winter
earth	= cube	(6 sides)	= autumn

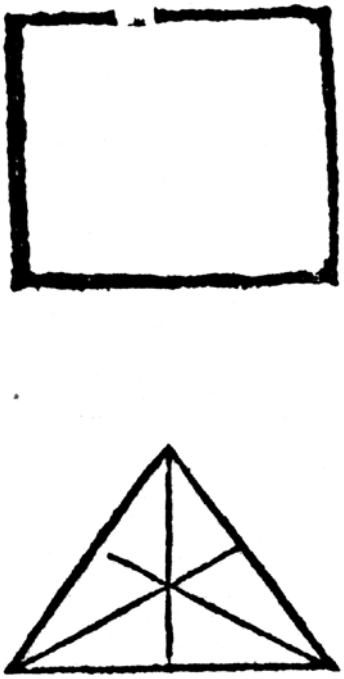

FIGURE 2.7 *Two diagrams in Ficino's* Compendium *representing the primary bodies of the opposite elements earth and fire.*

imply that musical sound is connected with the elements and the seasons. These analogies that touch less directly on music as harmoniously ordered sound are still important in Ficino's interpretation of the *Timaeus*, especially as he is interested in the question of how the mathematically determined nature of celestial harmony is imitated in a more or less corrupted form on Earth. However, he clearly distinguishes this sublunary *musica mundana* from the one brought about by the planetary movements, which to Ficino's mind, in line with scholars such as Aristides Quintilianus, causes real sound, albeit inaudible to mortal ears.

For Aristides the seasons have the following proportions: spring: autumn = 8:6 (4:3); spring: winter = 8:12 (2:3); spring: summer = 4:8 (1:2). See Haar 1961, 152–164.

For the more complicated geometric calculations, Ficino refers in this context to the writings of his contemporary Pierleone da Spoleto, suggesting that he himself is more interested in metaphysics and music than in the details of mathematical geometry.[164] In the fifteenth century, the discipline of geometry acquired a prominent place in some applied arts and sciences and began to emancipate itself from metaphysical theories of cosmic order. In line with this tendency, Ficino refers people interested in architecture to the treatises of Leon Battista Alberti,[165] and those interested in cosmography to the works of Francesco Berlinghieri.[166] The fact that cosmography, as a science dealing with physical nature, is kept outside the *Compendium* is further evidence that Ficino is more interested in the theological and metaphysical aspects of the *Timaeus* than in its philosophy of nature.

Ficino's account of the four elements in terms of Pythagorean ideas about geometry and harmonics, as analysed above, is sometimes seen as a first step toward the conceptualization of a homogeneous mathematical space, which was a necessary condition for the birth of the modern science of nature.[167] In *Compendium* XXIIII, Ficino himself admits that in the face of the dominant Aristotelian cosmological paradigm, this is a controversial view: "some natural philosophers, however, will deny that the elements exist in the heavens".[168]

In his interpretation of this chapter of the *Compendium*, Hankins (2000, 219) contends that Ficino's philosophy of nature to a certain extent can be considered a forerunner of the Copernican Revolution. Even if this is true, I would argue in the opposite direction: that Ficino's natural philosophical ideas are for the greater part traditional, religious, and/or magical in character, because what he considers to be natural is, in fact, always seen through supernatural lenses.

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164 See Hankins 1998.

165 Ficino refers here to Leon Battista Alberti's *De re aedificatoria*. See Alberti 1988. For the well-researched subject of harmony in Renaissance architecture, see, e.g., Wittkower 1949; and Haar 1961, 401–412. As Wittkower (1949, 103–110) has argued, changes in thinking about musical consonances in the discipline of music theory were reflected in Renaissance treatises about architectural principles.

166 Ficino refers here to Francesco Berlinghieri's *Geographia*, which is based upon Ptolemy's *Geographia*, of which he updated the maps in line with the new discoveries of his time. See Berlinghieri 1966. Berlinghieri was a member of the group of scholars around Ficino, which later generations have referred to as the Platonic Academy.

167 The central place of the Sun in Ficino's cosmology has given rise to the thought that he was a herald of the Copernican Revolution. For a summary of this debate in the secondary literature, see Allen 2003, 241ff.

168 *Esse utique elementa haec sub luna, nemo negabit. Esse vero in caelo, physici nonnulli negabunt. CiT* XXIIII, 66ʳ.

Furthermore, what is 'mathematical' in his explanation of natural phenomena is in fact 'numerological'. Hankins, however, is right that Ficino supports a uniform theory of the world, which accepts that the four elements are present on Earth as well as in the heavens. Ficino is of the opinion that the Aristotelian division of the cosmos into an eternal, incorruptible supralunar realm and a temporal, perishable sublunar realm endangers a uniform explanation of cosmic order, in which the intelligible is indissolubly bound up with the sensible. He disputes this opinion with an appeal to the theories of metaphysicians and exegetes of the Bible, who all argue for an integral explanation of the world in terms of geometric and harmonic ratios. In this respect, Ficino did play a role in the dismissal of the dominant Aristotelian cosmology of his time. Yet the question of whether a direct relationship exists between Ficino's ideas of world harmony and the Scientific Revolution remains open to further enquiry.

In sum, in my opinion, even if we take into account that Ficino also discards the traditional idea of attributing music to the elemental spheres in heaven, which can also be interpreted as a step towards a more scientific approach to the natural world, his theory of world harmony makes more sense when seen against the backdrop of traditional views of the subject.

As I will discuss at 4.3.3, from the second half of the sixteenth century onwards ideas about the relationship between geometry and philosophy of nature change drastically in the philosophy of scholars like Francesco Patrizi and Johannes Kepler. Whereas the knowledge that Euclid demonstrated that five solids can be inscribed within a sphere was of little importance for Ficino, it becomes the 'key to the universe' for Kepler in the seventeenth century. Kepler, whose explanation of the harmonic structure of the heliocentric cosmos has to solve the problem that the distances between the planets were irregularly spaced, uses in his solution the inscription of the five Platonic solids between the planetary spheres as given by Euclid.[169] Ficino, however, as I will show below, still believes that the planetary spheres are regularly spaced in a finite, perfectly ordered harmonic cosmos, and therefore, he is able to interpret this discovery by Euclid only through the lens of the commentary tradition.

2.4.4 *Astronomy: The Planetary Spheres as Harmonic Forms in Motion*

In the tradition of the harmony of the spheres, the discipline of astronomy is devoted to the study of harmonic forms—that is, shapes or figures in motion.

169 For Kepler's theory of world harmony, see, e.g., Field 1988; and Martens 2003. Kepler presents this idea of Euclid's as his own. In his *Mysterium cosmographicum* (1596) he reports that this insight came to him in a moment of divine inspiration. It would be interesting to find out whether Kepler had studied Ficino's *Compendium*.

Like geometry, astronomy deals with forms—that is, with number as magnitude, as continuous quantity.[170] In contrast with geometry, however, astronomy deals with forms in motion. Like music, it is concerned with harmonic proportions, but between mobile, rather than static, quantities. Astronomy and the concomitant discipline of astrology are expected to exemplify all seven cosmic principles mentioned at 2.3.2 by providing a dynamic model whereby all parts of the cosmos—from the lowest stone to the highest planet—can fit into a scheme of universal harmonic order. This cosmic scheme, which reduces the plurality of parts of the cosmos to the unity of an all-inclusive archetypal harmonic pattern, is expressed in all its complexity in the heavenly bodies and their interplay as they change position. Astronomy, therefore, is the most complex discipline in the quadrivium. On the practical level, astronomy produces tables for the rising and setting of the stars and provides the basis for the applied art of astrology.

In this section as well as at 2.5.3 I will analyse how Ficino transforms traditional astronomical ideas from the quadrivium into an all-inclusive theory of the magical and astrological harmonic interplay of all the different parts of the world. By building on and further developing ideas about Ficino's musical magic from Walker (1958, 12ff.) and Tomlinson (1993, 67ff.), I will argue that the main contribution to the tradition of the harmony of the spheres in his *Compendium* must be sought in the way that the Florentine uses the concept of cosmic sympathetic vibration in his explanation of cosmic dynamic interplay. His formulation of harmony as a manifestation of spiritual magic gives his interpretation a specific character, by which it can be distinguished from those of great predecessors like Proclus and Calcidius. In addition, Ficino's conception of the harmonic interaction between planets and humans will be discussed in chapter 3.

At the basis of Ficino's explanation of the harmony of the planetary spheres lies *Tim.* 37e–38c, where Plato argues that observation of physical nature leads man to the perception of a divine plan for cosmic harmony.[171] Fully in line with Plato, Ficino explains, on the basis of the phenomenon of parallax, that observation is only a preparatory stage for obtaining genuine knowledge of the cosmos, given the fallibility of the human senses:[172]

> When they [i.e., astronomers] compare the Moon with the stars of the firmament and ponder under which star and region it can be located,

170 See Heninger 1974, 115–132.

171 *Tim.* 37e–38c.

172 See Kristeller 1943, 236ff., 252, 255.

> they discover the deception of common sight [i.e., the problem of parallax]. Let there be three stars in the same face of a sign, stars manifest to our eyes and arranged, as it were, longitudinally. Of these [stars] the middle one has, so to speak, one star on its right and the other on its left. Let the Moon be perpendicularly [placed] under the middle star, and let three eyes placed at a long distance from each other look up from Earth to this conjunction of the Moon. Now the eye which looks [up] at the Moon at the central diameter—i.e., at the region directly above its head—judges it to be under the middle star. The [eye], however, which has looked at it obliquely from the left will see the Moon under the star that shines at the right of the middle star. . . . But the eye which has looked up from the right in a glance will transfer the Moon to the star to the left of the middle [star]. The same happens to us with [the observation of] many objects in nature.[173]

From optical illusions like these, Ficino concludes that astronomy as the study of stars as forms in motion must be orientated towards the intelligible world beyond the visible heavens. Though the visible heavens are the most beautiful of all created things, they are nevertheless inferior to the absolute perfection of God's archetypal harmonic model. Therefore, given the fallibility of the senses, Ficino prefers to develop his account of astronomy by deductive, rather than by inductive, reasoning. In line with the (Neo)platonic tradition, he believes that the truth of the invisible but most real world can be perceived only by the exercise of reason, working from observation of the heavenly bodies to a rational understanding of the harmonic patterns expressed in their activity.

At the end of the fifteenth century the *Timaeus* was not studied at Italian universities as an important source for astronomy or for philosophy of nature in general.[174] Yet Ficino is convinced that the dialogue holds the only true explanation of cosmic order. He is convinced, moreover, that Plato's astro-

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173 *Quando lunam ad stellas firmamenti comparant, et sub qua potissimum stella sit e regione perpendunt, communis visus fallaciam deprehendunt. Sint ergo tres in eadem signi facie stellae, nostris oculis manifestae, in longitudinem quasi dispositae. Quarum media alteram quasi ad dexteram habeat, alteram ad sinistram. Luna vera ad perpendiculum sit sub media. Tres autem oculi longe inter se distantes illam lunae coniunctionem e terra suspiciant. Oculus igitur qui ad diametrum, recta videlicet supra caput regione lunam suspicit, eam sub media stella perpendit. Sed qui ex obliquo inspexerit a sinistra, lunam intuebitur sub stella, quae ad dextram mediae stellae lucet. . . . Qui autem dextra suspexerit, lunam intuitu transferet ad stellam mediae stellae sinistram. Similiter et prope nos in multis obiectis accidit. CiT* ("Distinctiones") XXX, 85r.

174 See Grendler 2002, 297ff.

nomic theory is fully compatible with Aristotelian and Ptolemaic astronomy.[175] He therefore challenges Plato's opponents, who had argued that the *Timaeus* is merely a poetic account of Creation and therefore worthless for a philosophy of nature. Not only does the dialogue, in Ficino's opinion, provide an explanation of the way in which the heavenly bodies take their place in cosmic motion, but it also explains astronomical phenomena in causal terms. In his attempt to defend Plato's astronomical theory from refutation, Ficino argues that the astronomy of the *Timaeus* is fully in line with those of Aristotle and Ptolemy, because "Plato correctly acknowledged a single movement of the firmament from the east" and had been aware in his cosmogonic narrative "of the contrary direction of the planetary spheres [which are characterized by Difference] to that of this higher sphere of stars [which is characterized by Sameness]".[176]

In order to provide an explanation of the relationship between cause and effect in astronomical phenomena, Ficino closely follows the Timaean cosmogonic myth, where the cosmos is considered to have originated from an atemporal, indivisible, and infinite model in the Mind of its Creator, understood as the First Cause of the cosmos.[177] In this myth, time begins when, according to *Tim.* 37d, God gives physical extension to his archetypal cosmic model.[178] In astronomical terms, this moment occurred when the Demiurge created the heavenly bodies and set them in regular motion (*Tim.* 36b–e).

In sum, the chapters dedicated to astronomy in Ficino's *Compendium* are essentially a traditional study of time. Ficino as a metaphysician is not interested in the precise measurements of the orbits of the planets, their positions in space, or the distance each of them travels in a certain amount of time. He explains the difference between the methodologies of physicists and metaphysicists in terms of their approach to time and the motion of heavenly bodies: "physicists interpret time in terms of motion", that is, as transitory "number and measure", while "metaphysicists interpret it as perpetual and ordered motion", that is, as "eternity".[179] Hence, physicists deal with sensible numbers, and metaphysicists with intelligible numbers. Accordingly, Ficino's focus as a

175 *CiT* XXXVIIII, 76^{r}.

176 *Merito igitur unicum firmamenti motum Plato cognovit, ab oriente super polos Articum et Antarticum, axemque ab hoc in illum excogitatum. CiT* XXXVIII, 76^{r}.

177 *Timaeus* 37e–38c, corresponding to *CiT* XXXVII, 75^{r}, 75^{v}.

178 See Etienne 1998, 241–258.

179 *Quemadmodum vero physici per motum tempus augurati sunt quasi tempus sit aliquid motionis, vel continuitas eius, vel numerus, vel mensura. Ita metaphysici per ipsum tenorem motus perpetuum ordinatumque eodemque se modo semper habentem aeternitatem ipsam vaticinati videntur. CiT* XXXVII, 75^{v}.

metaphysicist is on the way in which the heavenly bodies return to their point of origin in a cyclical pattern, and he searches in the commentary tradition mainly for additional proof of the existence of a scheme of cosmic order independent of durational time. Consequently, every contradiction originating from the observation of heavenly phenomena is argued away as a superficial dissonance masking a consonance at a deeper level of the structure of the universe as interpreted through the lens of Ficino's Neoplatonist philosophy.

2.5 A Fifteenth-Century Dynamic Interpretation of the Music of the Spheres

2.5.1 *The Harmonic Structure of the World-Soul*

The discussion at *Tim.* 35b–36b of the harmonic design by which the Demiurge had made the Soul of the cosmos is treated at length in Ficino's *Compendium* and assumes almost independent significance.[180] The rational World-Soul in the *Timaeus*, which connects the intelligible and the sensible realm, still does seem to satisfy the demand for a middle term in Ficino's cosmology.[181] The chapters of his *Compendium* dedicated to his interpretation of the harmony of the World-Soul have a double function: on the one hand, they provide the general inductive view of cosmic harmonic order, analysed above, in terms of numbers, proportions, and harmonies; and on the other, they give a deductive explanation of the Creation of the world by God as First Cause.

In his interpretation of the cosmogonic myth at *Tim.* 35b–36b, Ficino takes the biblical God as his point of departure. The divine Architect-Musician is described in terms of number: He is the first principle, the all-inclusive Unity-Good from which the plurality of Creation proceeds.[182] Conversely, God unifies the plurality of things in nature by imposing harmonic order on His Creation. He is capable of minimizing differences between them.

In order to explain how God performs the unifying and harmonizing function of the World-Soul, Ficino first emphasizes God's creativity by using the metaphor of a wise architect to describe him:

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180 The doctrine of the harmonic composition of the World-Soul, which is one of the most prominent themes of Ficino's *Compendium* (XXVIII–XXXVI), is also dealt with in many of his other texts—for example, *TP* III.ii, XVII.ii. See, respectively, Ficino 2001–2006, 1 (2001): 231–247 and 6 (2006): 15–27.

181 *CiT* XXVIII, 69^{r}.

182 See Heninger 1974, 201–116.

> Imagine that in a very wise architect there is first and foremost a [cosmic] power and natural goodness; next, there is a geometric and contemplating intellect that contains the universal ratios of the dimensions; third, there is reason, what they call practical, because it deliberates about its work through the ratios themselves. In the fourth place, there is imagination, which imagines the forms and ratios already leading to the Creation; in the fifth place, there is desire; in the sixth place, there is the power of movement.[183]

Just as the design in the mind of a wise architect is perceivable in all the details of an actualized building, God's creative Mind manifests itself in every detail of the universe. From the fact that God was able to create the cosmos, Ficino derives His omnipotence. Furthermore, because Ficino equates the Demiurge with the loving and caring God of the Bible, the Demiurge's responsibility for His Creation does not stop after the seven days of Creation. Hence, God permanently supervises the operations of the cosmos to ensure its harmony and order. As immanent in the World-Soul—which manifests itself in a hierarchy of different cosmic cognitive faculties—God inhabits the world's body and gives it form.

Ficino reconciles the Timaean cosmogonic myth with Genesis by arguing that according to both sources Creation must be explained as the establishment of order on a primordial chaos:

> But lest anyone reprove this manner of speaking in Plato, when he presents matter as cast about in disorder before the [Creation of] the world, let him also hear Moses saying that before the separation of the world the Earth was without form and void and that darkness was over the face of the Earth.[184] I put the poetic chaos in this context.[185]

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183 *. . . cogitabis in architecto quodam sapientissimo vim primo bonitatemque naturalem; deinde geometricum contemplatoremque intellectum, communes rationes mensurarum habentem; tertio rationem, ut aiunt, practicam iam per rationes ipsas de artificio consultantem; quarto imaginationem figuras iam et modos conducentes operi effingentem; quinto affectum; sexto movendi virtutem. CiT* X, 62[r].

184 Genesis 1:1–2, which according to Ficino corresponds to *Tim.* 52d–53c. As explained above at 2.3.3, Ficino's definition of first matter is designed to reconcile both passages.

185 *At ne quis hunc loquendi modum improbet in Platone fingente materiam ante mundum inordinate iactatam, audiat et Mosen ante mundi distinctionem dicentem terram fuisse inanem et incompositam, et super faciem abyssi tenebras extitisse. Mitto in praesentia poeticum chaos. CiT* XII, 62[v].

Ficino then explains how during Creation the divine Architect informed the primal matter of the world with cosmic harmony.[186] At first, out of his infinite potential as the all-inclusive Good-Unity, God generated an archetypal structure, which is the essence of the World-Soul. This was done by applying cosmic principle 7, that is, by reconciling the two opposites of Sameness and Difference presented at *Tim.* 35a. Subsequently, the resultant World-Soul imposed form on passive matter, determining its motion, properties, and effects.

During Creation, the harmonic archetypal structure was imprinted on matter and organized chaos into the harmony of the four elements. In the *Timaeus* this creative process is a metaphor for the Demiurge's omnipotence, and his creativity is a means for understanding the structure of the cosmos. Following the medieval tradition, however, in his *Compendium* Ficino develops a story of the world's beginning as something that has truly happened. In order to prove that the Timaean cosmogonic myth and the biblical Creation story describe the same harmonic design according to which God had made the Soul of the cosmos, Ficino explains that they both speak about cosmic order in terms of number, measure, and weight:

> Because Plato accepted this mathematical theory, not because of its inherent mathematical value, but because of its importance in the context of a philosophy of nature, let us briefly consider which of nature's mysteries Plato discerns in these mathematical images. In the first place, what is read in the Holy Scriptures about God creating all things in number, measure, and weight[187] is clearly touched upon by Plato when he addresses numbers, measures, and solids. By solids, after all, he also means weights. And having dealt with measures, this is what he means when he mentions the powers of change as if they were the causes of weight.[188]

186 *CiT* VIIII, 61v.

187 Wisdom 11:20.

188 *Quoniam vero Plato mathematica haec non propter seipsa quidem, sed propter naturalia hic accepit. His praetermissis consideremus breviter, quae potissimum naturae mysteria per mathematicas imagines subintelligat. Principio quod in sacris litteris legitur: Deum omnia in numero, mensura, pondere perfecisse, manifeste tangitur a Platone numeros, mensuras, solida, in medium adducente. Per solida, enim, comprehendit et pondera; quae etiam significat ubi post dimensiones commemorat vires inclinationum quasi ponderum causas. CiT* XVIIII, 64v.

Underlying this passage is the Pythagorean premise, discussed at *Tim.* 31a–b, that the world as a single living creature is divided between a conceptual world composed of ideal forms and a physical world of formless primal matter. Creation occurred as the forms were imposed upon primal matter.

In contrast with some of his predecessors, who emphasized different aspects of God in their descriptions of a more or less static cosmos, Ficino seems to aim at a definition of God that will suit his description of a dynamic kind of cosmic order. Following Proclus, Ficino argues that Plato meant to say that God, the geometer and composer of the universe, is also a musician who 'sang' the cosmos into being:[189]

> And when Plato introduces the Demiurge as uttering—both in reasoning with himself and in commanding other things—[one can best consider] this very speech as if it were Apollo's most musical song. Plato is of the opinion that this is the origin of the Soul and Body of the world and that the World-Soul that has come into being from this source plays the [cosmic] celestial lyre, which [is tuned] according to musical ratio.[190]

Accordingly, the whole cosmos must be understood as a musical composition (e.g., a hymn, as discussed at 2.2.2) in which every part, as if it were a tone in a musical composition, has its own place, derived from the harmonic unity of the whole. In Ficino's interpretation one aspect of his complex concept of God stands out: God is defined in the first place as a dynamic cosmic power. Ficino conceives of God first and foremost as present in the World-Soul, the omnipresent life-giving power that flows through the whole cosmos and binds all its parts into Unity.

In sum, the image of God as Composer-Architect of cosmic order is a bridge to connect the intelligible realm of archetypal harmonic form with the sensible physical world. In his explication of God as the First Cause of the world, Ficino combines two dominant interpretations of the Creator originating from the commentary tradition. On the one hand, he follows the Neoplatonists, who had postulated that the Creator, as the Good-One, is an all-pervasive power that infuses the cosmos but is known only indirectly through its effects. God is understood from this viewpoint as a Musician, that is, as a dynamic pantheistic

189 Proclus, *In Tim.* 1.355.4–9.

190 *. . . ubi Plato mundi fabrum inducit loquentem, tum secum ipso ratiocinando, tum ad reliqua imperando, eloquium ipsum quasi Apollineum cantum apprime musicum; originem mundani tam animi quam corporis esse putat; et animam inde natam musica similiter ratione citharam pulsare caelestem. CiT* XXVIIII, 69^{v}.

World-Soul who may be perceived, for example, in nature on Earth. On the other hand, in strong contrast, Ficino conceives of God as an Architect who organizes the world in a static, formalistic way. In Ficino's *Compendium* both interpretations merge in a comprehensive view in which God's omnipotence is expressed through proportions and harmonic ratios.

In explaining the composition of the World-Soul, Ficino invites his readers first of all to listen to Plato himself, who wrote:

> In the beginning God takes a single portion [i.e., 1] from the whole, then a second portion which is double the first [i.e., 2], then a third [i.e., 3] which has a *sesquialtera* proportion with the second [i.e., 3:2] and a triple proportion with the first [i.e., 1:3]. After that, he takes a fourth which is double the second [i.e., 4], then a fifth which is triple the third [i.e., 9], [and] a sixth which is octuple the first [i.e., 8]. Finally, he takes a seventh which is 26 parts more than the first [i.e., 1 + 26 = 27]. This is what he [Plato] says. So, let us construct a triangle on whose apex is placed [the number] 1, flowing down from which on each side are three numbers, even on one side [2, 4, 8] and odd on the other [side] [3, 9, 27].[191]

Here Ficino shows that God, who is limitless and unchanging, is active in the physical world of nature through the idea or form of the point. First, he produced the line, then plane surfaces, and finally volumes, thereby creating all three dimensions of the physical world. Next, He created the four basic qualities (hot, cold, moist, and dry) and from them generated the *tetractys* (discussed at 2.4.1), which organizes the four elements in a stable system.[192] The archetypal forms for the elements are the regular solids of geometry (discussed at 2.4.3). In his religious opinion, this type of cosmic order could not have been achieved without an omnipotent and rational divine Composer-Architect. Only His power could impose cosmic order upon chaos. Ultimately, all change in nature can be reduced to the eternal harmonic laws of Creation.

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191 *Unam principio accepit portionem ex universo; secundam vero primae partis duplam; deinde tertiam, quae secundae quidem sesquialtera esset, primae vero tripla; postea quartam, secundae duplam; quintam deinceps, tertiae triplam; sextam primae octuplam; postremo septimam, quae partibus sex et viginti primam excederet. Haec ille. Constituamus ergo triangulum, in cuius apice locata sit unitas, a qua terni utrinque numeri profluant, hinc pares, inde similiter impares. CiT* XXXIII, 73r. This quotation is a paraphrase of Macrobius, *Commentary on the Dream of Scipio* I.vi, (Macrobius 1952, 109).

192 *Tim.* 49e–50a. See Plato 1937, 180–181.

God created the World-Soul out of the number 1, which proceeds to 2, the first even number, which is represented by a straight line with two endpoints. This number 2 is then multiplied by itself to produce a square number, 4, represented by a plane surface, which in turn, when placed in geometric progression (i.e., multiplied by 2), produces 8, a cube number and a volume. In another direction, the number 1 proceeds to 3, the first odd number. When 3 is multiplied by itself, it produces 9, a square number, which in turn, when placed in geometric progression (i.e., multiplied by 3), produces 27, a cube number. This formula represented diagrammatically as a triangle, as Ficino explains, is called the Platonic Lambda (fig. 2.8).[193] It consists of the geometric numerical series representing the harmonic design of the World-Soul, but it also constitutes the foundation of the Pythagorean tuning system. This diagram is also called the 'Delta of Crantor'. (The two progressions extending from the number 1—the geometric progression of 2 and of 3—suggest the shapes of the Greek letters lambda and delta.)

The triangle indicates how God, symbolized by the number 1, can proceed through a geometric progression of even numbers until he reaches the limit of extension, the cube number 8, a volume having the three possible dimensions of length, breadth, and depth. It indicates simultaneously how the number 1 can proceed through a geometric progression of odd numbers until it reaches the cube number 27, the limit of extension in that series. In short, the triangle represents how God, as First Cause as well as animating power, is present from the very beginning in every part of the cosmos.

Expressed in music-theoretical terms, this also means that each interval of the cosmic scale, which is constituted on the basis of the numbers of the harmonic structure of the World-Soul, relates to every other part and contributes to the whole. And in addition, because the cosmic octave (which represents the ratio 2:1) can be multiplied an infinite number of times (3:1, 4:1, etc.), the traditional Pythagorean music theory expressed by means of figure 2.8 is also an illustration of all possible ways in which the sensible and intelligible worlds are interrelated.[194]

In order to illustrate this difficult chapter of Pythagorean harmonics, Ficino uses another triangular diagram, which he seems to have designed himself for this purpose, to try to explain in further detail how God's perfect harmony emanates from the intelligible world into the extended world of physical objects (fig. 2.9).

193 *CiT* XXXIII, 73^{r}. This diagram corresponds to table 7 in Calcidius 2003, 786.

194 *CiT* XXXIIII, 74^{r}.

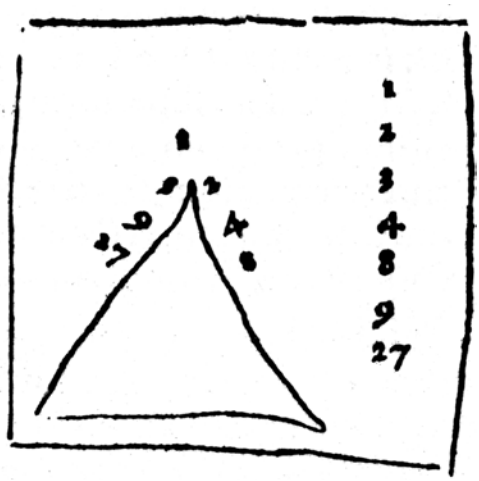

FIGURE 2.8 *A diagram in Ficino's* Compendium *representing the two geometric progressions that underlie the Timaean scale.*

Ficino takes Plato's theory of the relationship between forms or ideas and their images as the point of departure for his explanation of emanation. Through the connection between ideas and their images, harmonic structures in the physical world, which are made up of numbers and their ratios and proportions, can all be conceived of as images of the essential divine Unity:

> The [number] 1 in the above given figure [fig. 2.9] represents the very unity of the Soul as well as its sublime simplicity, and as such it is the very image of the divine Unity remaining in Itself.[195]

Yet Ficino still has to explain precisely how the numbers in the World-Soul, defined as images from God, are able to interact with matter and why they can function as intermediaries between Being that is indivisible and remains always the same and Being that is transient and divisible in things in nature.[196]

195 *Unitas in superiori figura significat ipsam animae unitatem simplicitatemque sublimem et propriam divinae unitatis imaginem, et in ipsa manentem. CiT* XXXIIII, 73^{v}.

196 *Tim.* 35a.

FIGURE 2.9 *A diagram in Ficino's* Compendium *representing the harmonic relationships of the different grades constituting the hierarchy of being.*

In his formulation of answers to these questions, at first sight Ficino seems to have made a mistake in explaining the subdivision of the octave. He attributes the sesquioctaval proportion (9:8) belonging to the whole tone to 'Essence' as the highest grade of being.[197] This is unusual, because in the *Timaeus* itself, as well as in its main commentaries, this grade of being was associated with the highest degree of Unity: with the number 1 or with the double ratio of the cosmic octave (2:1). As a result, in Ficino's diagram all the simple proportions (1:2; 2:3; 3:4) emanate from the less simple proportion of the tone (9:8): a topsy-turvy way of representing cosmic harmony. Perhaps Ficino simply associated the whole tone, as the basic unity of an octave, with metaphysical Unity. This error would then indicate that for him the Timaean doctrine of cosmic harmony was already a partly ossified theory and that cosmic order and music theory had started to drift apart.

It is more likely, however, that Ficino understood the doctrine of the division of the World-Soul into harmonic intervals at *Tim.* 35b–36b quite well and attributed the ratio 9:8 to God's perfect Unity because the ratio 9:8 is the arithmetic mean, that is, the absolute centre of the whole cosmos, which is represented in the same diagram by the ratios 2:1 (*dupla* = diapason), 3:2 (*sesquialtera* = fifth),

197 Just like some of his predecessors, Ficino translated the Greek term for "existence" with the Latin term *essentia* (essence). For the terminology, see Plato 1937, 59–66.

and 4:3 (*sesquitertia* = fourth).[198] All opposites in the cosmos—for example, between infinity (*infinitudo*) and finiteness (*terminus*), between difference (*alteritas*) and sameness (*identitas*), and between movement (*motus*) and rest (*status*)—can finally be reduced to God's perfect Unity because they are all expressions of different ratios of the numbers constituting the two geometric progressions that underlie the Timaean scale (fig. 2.8). If so, then Ficino's diagram (fig. 2.9) is a new explanatory tool devised to visualize a notoriously difficult passage in the Timaean cosmogonic myth. The philosopher concludes his discussion of the harmony of the World-Soul with the remark that he has now successfully demonstrated a "triple concordance: between the World-Soul and the World-Body, between the different parts of the World-Soul, and between the different parts of the World-Body".[199]

Subsequently, Ficino claims that in order to fashion a correct image or echo of the intellectual world, as a further stage of Creation, God created the physical cosmos after his intellectual model. *Tim.* 36b describes the World-Soul as a long, malleable band made up of invisible primal matter out of which the spherical physical cosmos was created. In the original dialogue the transition from the world of concept to the physical world is abrupt, and Ficino must resort to his predecessors and his own interpretative strategies to see how this conceptual cosmic band might relate to the physical cosmos.

First, Ficino defends Plato from the charges levelled by some of his commentators that in astronomical matters he was spinning elaborate metaphors rather than reliably reporting cosmic events:

> Among these topics, [Plato] touches on a few, fairly common, that pertain to astronomy, but even a person of scant learning can easily understand them.[200]

Having refuted the imaginary nature of *Tim.* 36b, as a matter of course Ficino declares that during Creation the band of the World-Soul split lengthwise into

198 As we have seen above in Ficino's explanation of the science of arithmetic at 2.4.1, in an arithmetical proportion the relationship between the three terms can be formalized as $a - b = c - b$. This is the case in the relationship between the octave and the fifth (1:2:3), as well as in the relationship between the fifth and the fourth (2:3:4).

199 *Totus denique superior de harmonia tractatus triplicem concordiam significare videtur, scilicet inter animam atque corpus, et inter animae partes invicem, atque inter partes corporis invicem. CiT* XXXVI, 74^{v}.

200 *Tangit inter haec pauca quaedam atque communia, quae ad astronomiam pertinent, sed haec facile quivis vel mediocriter eruditus intelligit. CiT* XXXVII, 75^{r}.

two long strips, joined in the middle in the shape of an X and subsequently bent round to form two rings.[201] He adopts the traditional interpretation that these two bent strips represent the sidereal equator, the fixed band of stars around the horizon, and the zodiac, which is variable.[202] Of the two rings of the cosmos, the outer, stationary ring is characterized by Sameness, while the inner, variable ring is characterized by Difference. God ordained that the ring of Sameness would remain One and indivisible, while he divided the ring of Difference into the seven unequal circles which would become the planetary spheres. For Ficino, the astronomical detail of this passage seems to be far less important than the conclusion that

> all the harmonic powers exist in both circles, although in different ways, signified by splitting the World-Soul lengthwise.[203]

Immediately after describing the construction of the World-Soul and its imposition upon matter, Ficino deals with the explanation of movement and time at *Tim.* 37c–38c.[204] In addition to physical extension into the three dimensions of space, God endowed the cosmos with the dimension of duration, which at *Tim.* 37d is defined as 'time':

> Finally, in some way you must portray this by the World-Soul surrounding an intelligible axis that is always engaged in the same action, but then perpetually rotating about that axis by multiple actions. Now this axis is eternity, and that circumference is time, a kind of image of eternity. By a similar principle heaven is turned in spherical motion by the World-Soul turning itself, and it accepts time from time.[205]

Days and nights and months and years are the units of time, the measurable parts of this image of eternity which moves according to numerical principle.

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201 This description is often interpreted as the creation of a conceptual kind of armillary sphere by the Demiurge. See Plato 1937, 74.

202 See Heath 1921, 163.

203 *In utroque vero circulo sunt omnes harmonicae vires quamvis aliter quod per illam in longum scissuram significatum fuit. CiT* XXXVII, 75^{r}.

204 *Tim.* 37c–38c, corresponding to *CiT* XXXVII, 75^{r}.

205 *Denique quomodolibet istud effinxeris anima circa intelligibilem cardinem in eodem actu semper stantem, deinceps multiplicibus actibus perpetuo se revolvit. Cardo quidem ille aeternitas est, haec vero circumferentia tempus. Quasi quaedam aeternitatis imago. Caelum simili quadam ratione anima in orbem se versante versatur, accipitque tempus ex tempore. CiT* XXXVII, 75^{v}.

In this passage, Ficino adopts Plato's view that the heavens are a created form of time, which imitates eternity in circling around according to harmonic order.[206] This implies that time proceeds by a predetermined, continuously repeating pattern. Etienne (1998, 243), however, shows that Plato's definition of time as a cyclic image of eternity causes severe problems for Ficino, because it is almost impossible to reconcile this model with the contrastive Christian linear conception of time.[207] In order to preserve Plato's cyclic definition, Ficino argues that eternity must be considered as an expression of the infinite power of God, who always was, is, and will be.[208] In Ficino's view, the Christian linear conception of time and the Platonic cyclic image of eternity are the sensible and intelligible manifestations of one and the same divine conception of time.

By means of this specific interpretation of time, Ficino is able to defend the teleological view that history is a process that is always developing in a harmonic, purposeful way. Furthermore, he is able to conclude with Plato that the planets have been given by God to mankind in order to mark off the periods of time. Ultimately, fully in line with both *Tim.* 47b–e and the Bible, the planets are instruments by which to learn to count and to calculate and also to understand the harmonic order of the cosmos.

2.5.2 *Four Cosmic Harmonizing Powers*

In Ficino's *Compendium*, the harmonic analogy between macrocosm and microcosm is largely based on the assumption that astral laws govern life on Earth. His theory of cosmic interplay of different powers in the physical cosmos is an extension of the Timaean doctrine of cosmic harmony based on the tripartite subdivision of being in Existence, Sameness, and Difference, all of which fuse together in the final mixture of the World-Soul (*Tim.* 35a). Furthermore, the ontological network of cosmic analogies displayed in his *Compendium* functions also as a foundation of knowledge. Because the human being reflects the cosmos, he is conceived of as a kind of miniature 'corporeal firmament' that is similar to the heavenly firmament with its planets and stars. In the process of gaining knowledge, man discovers that he undergoes the same events, changes, and influences as the heavenly bodies. Hence, man is integrated in an

206 *Tim.* 38a.

207 See Sorabji 1983, 193–282; and Dales 1990, 109–128. Ficino inherited these problems from his medieval predecessors.

208 *CiT* XXXVII, 75^{r}–75^{v}. Ficino also discussed the concept of time in the context of a theory of the Creation of the world in *TP* 18.1.8–9, 18.1.12. See Ficino 2001–2006, 6 (2006): respectively, 72–77 and 78–81. For Ficino's definitions of time and the end-time, see Allen 1994, 44–105.

all-inclusive spatio-temporal harmonic structure, which grants meaning to his personal life, as will be explored in further detail in chapter 3.[209]

Ficino followed predecessors from various traditions, including the Alexandrian Neoplatonists, Avicenna, and al-Kindi, in believing that nature on Earth is an imitation of the mathematically determined nature of celestial harmony. Many ancient and medieval sources on world harmony mainly dealt in a static way with analogies between the heavens and Earth, but scholars such as Plotinus, Proclus and al-Kindi were also highly interested in cosmic dynamic interplay. As Cassirer (1963, 101) noted, Ficino was particularly interested in the question of how dynamic natural processes on Earth were caused by harmonic phenomena in the heavens, and therefore, his interpretation is highly indebted to these illustrious predecessors. In this section, however, I will argue that he had a greater interest than most of them in the physical aspects of nature, as a result of which his theory of natural magic to a certain extent differs from theirs.[210]

In principle, all cosmic influence in Ficino's *Compendium* is modelled on the manifest influence of the Moon on earthly phenomena. Since the same powers are active in all analogous parts of the cosmos, equal powers can be transmitted from one part of the cosmos to another. The existence of a harmonically structured cosmic web of dynamic interactions forms the very foundation of Ficino's view of the cosmos:

> Given this miraculous harmony of worldly things, it so happens that the motions of individual things easily pertain to all: the gifts of the higher things flow down to those that follow [in the hierarchy of being], whose prayers rise toward the celestial deities.[211]

By the "miraculous harmony of worldly things" Ficino means the harmonic composition of the universe, the way the whole cosmos is put together, as well as the harmonizing supernatural and natural forces governing its dynamic interplay.

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209 Allen 2003, 242.

210 For Ficino's musical magic, including his inheritance of ancient and medieval theories of musical magic, see, e.g., Walker 1958, 3–72; and Tomlinson 1993, 44–144. For the place of magic in Renaissance philosophy, see, e.g., Vickers 1984; and Védrine 1996.

211 *Ex hac igitur mirifica mundanorum conspiratione contingit ut motus singulorum facile ad cuncta pertineant, superiorum munera in sequentia defluant horum vota ad superiora conscendant. CiT* XXXX, 77^{r}.

From Ficino's conception of a cosmos in which the physical world is subjected to the laws and principles of higher spheres, it follows that the strata or concentric spheres in the hierarchy of being occur, not in an isolated and independent way, but rather in connection with each other. The philosopher conceptualizes this dynamic interplay between higher and lower spheres in the cosmos with the image of a heavenly scale connecting the higher spheres of the cosmos with Earth.[212] The cosmic scale functions in Ficino's philosophy of nature as an explanatory model for the mutual influence between the heavens, the 'intelligible world', and Earth, a part of the 'corporeal world':

> Finally, this World-Creature, no less than any other animal, accords with itself in all its limbs and joints, being divinely tempered by some wondrous harmony. This World-Creature is also in accord with the intelligible world, which contains the ideas of things in the physical world. Furthermore, it is in accord with the intellectual world, that is, with the order of supercelestial intellects, in which that intelligible world has expressed the ideas and the forms of this corporeal world before doing so in this corporeal world.[213]

Given that Ficino conceives of the universe as a dynamic system of powers with emanation and influence, it makes sense that the substantial power of God, which is defined as the First Cause of the cosmos, flows gradually into the subordinate spheres of being, so that they all embody a particular modification or reflection of it. Every sphere of being is an emanation of the highest principle, because the power of the highest Cause is the source of existence for all other beings. The cosmos is consequently conceived of as a unity, in which all is connected to all, because God, as First Cause, is omnipresent in all parts of His Creation.

In Ficino's explanation of how this miraculous harmony manifests itself in the cosmos, demons play a major role:

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212 An alternative metaphor to describe cosmic order is given in Ficino's metaphysics of light, which is related to the sense of seeing. Ficino's *Compendium* discusses both cosmic harmony and light metaphysics, but the emphasis is on the former and the accompanying sense of hearing. See Albertini 1997, 76–84, 87–101.

213 *Denique mundanum hoc animal non minus ubique quoque quodvis aliud animal per omnes artus articulosque secum ipso consentit harmonia quadam mirifica divinitus temperatum. Consentit quoque cum intelligibili mundo mundanorum ideas habente consentit rursus cum intellectuali mundo, id est supercaelestium intellectuum ordine, in quo intelligibilis ille mundus ideas formasque mundi huius corporei priusquam in hoc expressit. CiT* XXXX, 76^{v}, 77^{r}.

> Indeed, in the abovementioned place under the guidance of a planet, there are many animated beings of a similar nature, however they may be called. For the time being I call them all in general 'demons', whether they are natural [demons] or [personal demons] directed towards human beings. All of them imitate their sovereign planet in function and orbit. In air there are similar demons—some natural and others travelling outside [the bodies of] human beings—which under the guidance of each of their leaders [i.e., planets] in some way imitate the celestial dance of the stars. Finally, in some way every sphere is a whole world.[214]

In *De vita triplici* (*Three Books on Life*), Ficino clearly tried to distinguish natural from spiritual and demonic magic in order to avert criticism from the church.[215] Spiritual magic takes place on the level of spirit. Though the Timaean concept of the World-Soul can be used in principle to explain magical dynamic processes in nature—ensuring that actions performed in one part of the World-Creature will be passed to other parts, even without direct contact—Ficino often follows his Neoplatonic predecessors in using their theory of cosmic Spirit to account for natural phenomena. The concept of cosmic Spirit has always occupied an important place in Neoplatonist schools of natural philosophy.[216] According to these schools, cosmic Spirit emanates from God and subsequently acts creatively in the world by way of emanation. In some of these schools the concept of Spirit is associated with the biblical Spirit of God moving over the face of the waters.[217]

Plotinus's concept of World-Spirit, used in the context of his philosophy of nature as a fifth, ethereal essence, containing all the qualities of the four elements, is particularly influential in Ficino's reading of the *Timaeus*.[218] Here the concept of cosmic Spirit as an intermediary between form and matter helps Ficino to explain a variety of natural phenomena, especially the dynamic interaction of the cosmic Body and Soul. Spirit acts as a kind of motion, through

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214 *Sunt enim ibidem sub duce planeta ferme eiusdem generis animalia multa, quomodocunque vocentur. Ego nunc communiter appello daemonia. Sive illic naturalia, sive ex hominibus adventitia. Quae officio circuituque planetam dominum imitantur. Similiter et in aere eiusmodi sunt daemonia partim naturalia partim ex hominibus peregrina; sub ducibus quaeque suis quodammodo caelestes choreas imitantia. Denique sphaera quaelibet quodammodo totus est mundus. CiT* XXVI, 67^{r}.

215 See Walker 1958, 45–53.

216 For the reappearance of Plotinus and his theory of cosmic Spirit in the Renaissance, see Saffrey 1996.

217 Genesis 1:2.

218 *CiT* XXVII, 67^{v}–68^{r}, corresponding to *Tim.* 34b–c.

which form and matter combine. But it is not the only concept he uses to explain the secrets of nature.

The modern literature on Ficino's magic often focuses exclusively on *De vita*: Eamon (1994, 1960), for example, argues that thinkers such as Ficino attempted to create an occult philosophy based on purely non-demonic principles, because demonic magic was vigorously opposed by the Catholic Church. But in Ficino's *Compendium*, no clear distinction is made between 'natural demons' (i.e., the impersonal planetary demons or spirits that are supposedly the basis of natural magic) and demons which are "travelling outside the bodies of human beings" (i.e., the personal demons or spirits that reside in the planetary spheres and perform exactly the same function as the celestial spirits). Hence, instead of natural or spiritual magic, the musical magic in Ficino's *Compendium*—a magic based on the harmonic likeness between the World-Soul and the human rational soul—can be better classified as a kind of transitive magic, which according to Hankins (2007, 35) emphasizes the extraordinary power over nature that can be exercised by the highest power of the human soul, both within one's own body and upon other bodies and indeed upon the whole body of nature.

As observed by Pennuto (2000, 306), Ficino's interpretation of the "celestial dance of the stars", quoted above, is evidently inspired by ideas about circular motion caused by Intelligence in Plotinus's *Enneads*. Plotinus had argued in this book that "there must be a harmony between cause and caused" and continued by saying that "every configuration within the heavenly circuit must be accompanied by a change in the position and condition of things subordinate to it, which thus, by their varied rhythmic movement, make up one total dance-play".[219] Plotinus does not refer to the actual sounds used in the cosmic dance but to the movements of the dancers, which must be seen as parts of a larger whole:

> the whole dance-play of the entire person dictates the necessary position to each limb and member as it serves to the plan. . . . This is the mode in which the heavenly beings (the more divine members of the All) must be held to be causes wherever they have any action, and, when they do not act, to indicate. Or, to put it in a better way: the entire Cosmos puts its entire life into act, moving its major members with its own action and unceasingly setting them in new positions; by the relations thus established of these members to each other and to the whole, and by the different figures they make together, the minor members in turn are brought

219 See Walker 1958, 14, esp. n. 5.

> under the system . . . of this living whole in their choral dance are under a rule of Number.[220]

As the moving bodies do not move at equal speeds, their configurations are always changing. Plotinus, moreover, argues in this passage that "in our own realm all that happens reacts in sympathy to the events of that higher sphere".

Ficino adopts Plotinus's conception of the cosmos as a dynamic harmonious whole in which every part has power. Like his predecessor, he is of the opinion that the bodies moving through the heavens (i.e., the planets and stars) are endowed with different cosmic powers of both impersonal planetary demons (spirits) and personal demons (spirits) that reside in the planetary spheres. In sum, in Ficino's interpretation of the harmonious interplay of cosmic dynamic powers, natural and demonic magic are conceptually merged in his notion of the celestial dance of the stars.

Ficino's account of the interior dynamic connections of the world marks his most significant contribution to the tradition of the harmony of the spheres. Building on and further developing Kristeller's (1943, 171–200) analysis of cosmic dynamic interplay in Ficino's philosophy, I will show how the philosopher's concept of cosmic order can be analysed in terms of the inner connections between different parts of the cosmos, which are organized by a set of four harmonizing cosmic powers.

First, according to Kristeller (1943, 171), the organic structure of the cosmos is governed by an *appetitus naturalis*, a power which Ficino only casually adresses in his *Compendium*:

> By some natural conversion all parts of the cosmos have an appetite for the Good as their end.[221]

The *appetitus naturalis* can be defined as a harmonizing power that determines the sympathetic and antipathetic relationships between different parts of the cosmos. This power represents a whole system of powers that accounts for the mutual attraction and repulsion of different parts of the cosmos. These contrary movements are based on the similarity or dissimilarity of the parts. Sympathy (or attraction) harmonizes, unites, and pulls the parts together, but antipathy (or repulsion) disharmonizes, divides, and disperses them. According to *Tim.* 35a, sympathy leads to an increase of Sameness between the

220 Plotinus, *Enneads* IV.4.33–36; translation by McKenna in Plotinus 1962, 316–320 (modified).

221 *Sic utique omnia conversione quadam naturali bonum appetunt tanquam finem. CiT* XI, 62r.

parts, whereas antipathy, as a counterforce, separates them and therefore leads to an increase of Difference.

Ficino's explanation of the story of the ancient war told at *Tim.* 20e–27b introduces the theory of an eternal dynamic interplay between contrary powers. He states that war must be understood as an allegory of the cosmic law of attraction and repulsion:

> To these things, then, Iamblichus, Syrianus, and Proclus add the [power of] opposition which is perpetually active in the parts of the universe, between Unity and Multiplicity, Finiteness and Infinity, Sameness and Difference, and Rest and Motion, from which everything is composed from the One as its origin.[222]

With regard to the harmonic interplay of cosmic powers, Ficino's theory of world harmony can be characterized as an anthropomorphic projection. The cosmic play of sympathetic and antipathetic powers is a projection of the human experiences of love and hate, friendship and hostility, and consonance and dissonance onto the cosmos.[223] Within this conceptual frame, all things in nature are endowed with a kind of attraction to their natural habitat—that is, to the place where they belong in the cosmos.[224] Once a thing in nature has reached its natural place in the cosmic scheme, it either remains there or circles harmonically and smoothly around the Good as the central object of attraction. In addition, generation, growth, and decline in nature are explained in terms of expansion and contraction and of multiplication and unification of the different parts of the cosmos. The mutual relationship between the different parts of the world is organized by the law of attraction and repulsion. Different parts of the cosmos attract each other through the harmonizing power of God and repel one another by a contrary, dispersive power.

Second, the internal structure of the cosmos is governed by the power of *analogia*. This cosmic power determines the similitude between different parts of the cosmos. In Ficino's view, parts of the cosmos are conceived of, not as substances with accidental properties, but as conglomerates or aggregates

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222 *Proinde Iamblicus, Syrianus, Proclus his addunt oppositionem ipsam in universis vigentem perpetuo, inter unum et multitudinem, terminum et infinitatem, idem et alterum, statum et motum, ex quibus sub primo omnia componuntur. CiT* IIII, 59^{v}.

223 For a detailed analysis of the complex interaction between the concepts of analogy and love in the context of Ficino's philosophy of nature, see Kristeller 1943, 110ff.; and Cassirer 1963, 133ff.

224 See Kristeller 1943, 181; and Allen 1994, 81–105.

of substantial properties, which are transmittable. With this assumption, analogies can be found not only between two individual parts but also between the relations, ratios, and proportions of different parts. These complex harmonic analogies are the cornerstone of Ficino's vision of the universe as a musical Creation. He argues, for example, for a proportional relationship between the opposite elements of fire and earth:

> It is indeed the case that fire can be compared to earth on the basis of a certain analogy, that is, on the basis of a similarity of their ratio and proportion.[225]

Innovative cosmological speculation appears in Ficino's elaboration of the idea that by the power of analogy every part of the cosmos contains a part of the whole, a notion that originates at *Tim.* 32c–33a, where cosmos is described as composed of the four elements earth, water, air, and fire. This passage allows not only for the static description of the external structure of the world addressed in Ficino's account of the discipline of geometry but also for a dynamic one, which implies that the elements are mixed in a perfect condition, so that every elementary particle of the whole mixture is capable of actively imitating the whole. Similarly, every one of the four elements as a whole is contained in the whole and proportionally in its parts. The four elemental parts are also specific wholes; that is, they are mirrors of the whole that reflect its infinite plurality.[226]

Third, the internal structure of the cosmos is governed by the power of the *primum in aliquo genere* (Kristeller 1943, 146). This cosmic power determines the *convenientia* (harmony, concordance, consonance) between the supreme element and all other elements in a particular genus:

> But if nature, which emanates from God, has inserted properties in certain things in harmony with things above, so that they may in some way turn themselves towards these things above, as solar things [turn] to the Sun, and lunar things to the Moon, then how much more has the father of souls impressed on these souls the powers drawing them to him?[227]

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225 *Profecto quod ignis ad terram analogia quadam, id est rationis similitudine atque proportione, comparabilis sit, apparet. CiT* XXIII, 65^{v}.

226 *Tim.* 46a–c. As in Plato and some of the (Neo)Platonists, the mirror was a very powerful metaphor in Ficino's philosophy. It not only reflects but is also able to perform transformations during the process of mirroring. See Kodera 2002 and Prins 2007.

227 *Quod si natura ex deo manans quasdam rebus quibusdam convenientes cum superis proprietates inseruit, per quas quodammodo ad superos sese vertant, ceu ad solem solaria, ad*

This power is based on the axiom that all different parts of the world exist together in one harmonic spatio-temporal structure and therefore react to each other in a dynamic process of eternal circular motion. The universal bond linking the different parts of the world originates in a common substrate which accounts for the origin of all parts and which facilitates their coexistence. In various contexts, Ficino theorizes on the nature of this substrate. In his *Timaeus* commentary it consists in numbers, ratios, and proportions of the World-Soul, by which all creatures are connected as if by an invisible rational bond.

Fourth, the internal structure of the cosmos is governed by the power of *aemulatio*. Ficino uses this power to explain how, through cosmic reflection, God as the First Cause of the universe is mirrored in the infinite plurality of heterogeneous effects:

> Similarly, the Intellect too is created by God as first among all things, and the intellectual Countenance, that is, the absolute order of things, shines highest in the mirror of nature.[228]

The power *aemulatio* is used to express the relationship between God as the First Cause of the universe and the infinite plurality of heterogeneous effects even beyond the borders of space and time. This power is active in the world in interaction with the power of *analogia*, by which all things are reflected in all things. And furthermore, it is active in interaction with the power of *primum in aliquo genere*, which guarantees the similitude and affinity of all things in the world.

In Ficino's *Compendium* it is not only the visual phenomenon of reflection that creates a theoretical bridge over distances in time and space through the power of *aemulatio*. Reflection is paired with the aural, or kinetic, phenomenon of 'sympathetic vibration', which also functions as a dynamic model to explain how different parts of the cosmos which lack a direct relationship interact with each other as a magnet with iron.[229] Sympathetic vibration is a

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lunam vero lunaria, multo magis animarun pater rapientes ad se vires eis impressit. CiT VI, 60^{r}–60^{v}.

228 *Similiter et intellectus omnium primus procreatur a deo, et intellectualis vultus, id est absolutus ordo rerum, ultimus omnium in speculo naturae refulget. CiT* XXVIII, 69^{r}.

229 Sympathetic vibration is discussed, for example, in Plato, *Republic* 531b; Plotinus, *Enneads* IV.4.40–41; and Proclus, *Commentary on Euclid's Elements* 41: 2. See Creese 2010, 241ff. The sympathetically sounding string is a powerful metaphor in Ficino's explanation of harmonizing cosmic powers. It is also used in *De vita* III.21. See Ficino 1989b, 360–361.

harmonic phenomenon by which a formerly passive string responds to external vibrations of an active string to which it has a harmonic likeness. Ficino describes this acoustic phenomenon as follows:

> If from one sounding lyre a tone suddenly is communicated to another lyre tuned in the same way, then immediately from this vibrating string a similar vibration is passed on to the [other] string which is equally tuned.[230]

Ficino's explanation of spiritual magic in terms of cosmic sympathetic vibration in two equally tuned strings is again borrowed from the *Enneads* of Plotinus:[231]

> Often, too, the sounding of one string awakens what might pass for a perception in another, the result of their being in harmony and tuned to one harmony. Now, if the vibration in a lyre affects another by virtue of the sympathy existing between them, then certainly in the All—even though it is constituted in contraries—there must be one harmony; for it contains its unisons as well, and its entire content, even to those contraries, is a kinship.[232]

In Ficino's *Compendium* the metaphor of sympathetic vibration of equally tuned strings of the celestial lyre, or monochord, becomes a powerful instrument to explain the dynamic harmonic interplay between all different parts of the cosmos. Presumably, this is the case because the power of sympathetic vibration, just like the power of *aemulatio*, is able to explain interactions in the cosmos which occur at a distance in space and time.

In sum, Ficino's view of the universe as a musical Creation can best be described in terms of a continuous interplay of the following four cosmic powers:

1. *Appetitus naturalis*: a cosmic power that determines sympathetic and antipathetic relationships between parts of the cosmos.

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230 *Nam si ex sonante cithara in citharam similiter temperatam resonat repente nonnihil, et ex chorda vibrata, statim in chordam aeque tentam transit vibratio similis. CiT* XXXI, 71r.

231 Walker 1958, 14, esp. n. 5.

232 Plotinus, *Enneads* IV.4.40–41; translation modified from Plotinus 1962, 323–324.

2. *Analogia*: a cosmic power that determines the similitude between different parts of the cosmos as well as the correspondence between their structural relationships.
3. *Primum in aliquo genere*: a cosmic power that determines the *convenientia* (harmony) between the supreme element and all other elements in a particular genus.
4. *Aemulatio*: a power that explains cosmic interactions that occur at a distance in space and time.

2.5.3 *A Magical-Astrological Interpretation of the Music of the Spheres*

The Neoplatonist hierarchy of being is a series of conceptual spheres superimposed on one another. The hierarchy of the Middle Ages, on the other hand, is a series of spheres disposed one beside the other in a physical representation of the cosmos. In order to reconcile these two spherical models, which are discussed in detail by Kristeller (1943, 74–75), Ficino's metaphysics fuses 'the Good' and 'the One' into a single substance.[233] In doing so, the Florentine is able to project ancient ideas about the harmony of the spheres onto the medieval spherical cosmos.

Ficino's view of the universe as a musical Creation, in which these conceptual and physical representations are merged, will now be explained in further detail on the basis of an illustration of the harmony of the spheres in Johann Eck's edition of Aristotle's *Libri de caelo* (fig. 2.10).[234] Because the conceptual Neoplatonic and the physical medieval spherical hierarchies of being cannot be distinguished in Ficino's commentary, it is evident that he conceived of the planetary spheres as physically existing. Hence, this picture, although Aristotelian in origin, corresponds in broad outlines to the interpretation of the music of the spheres given in his *Compendium*.[235]

In chapter XVI of his *Compendium*, Ficino's argues first of all for the spherical shape of the world. Because God is one, good, and perfect, he could not create a plurality of worlds "as balls to play with", because then there must be empty space between the different worlds, and void in Ficino's metaphysics

233 For the variation in the number of celestial spheres in Ficino's accounts, see Allen 1984b, 118–121.

234 Aristotle, *Libri de caelo IV*, ed. Johann Eck (Augsburg, 1519), fol. 29^{v}. A detailed analysis of this diagram is given in Heninger 1974, 122–124; and 1977, 140–143.

235 Ficino's interpretation of the concept of the harmony of the spheres is inspired most of all by Macrobius. For Macrobius's account of the harmony of the spheres in his *Commentary on the Dream of Scipio*, see Macrobius 1952, 185–200.

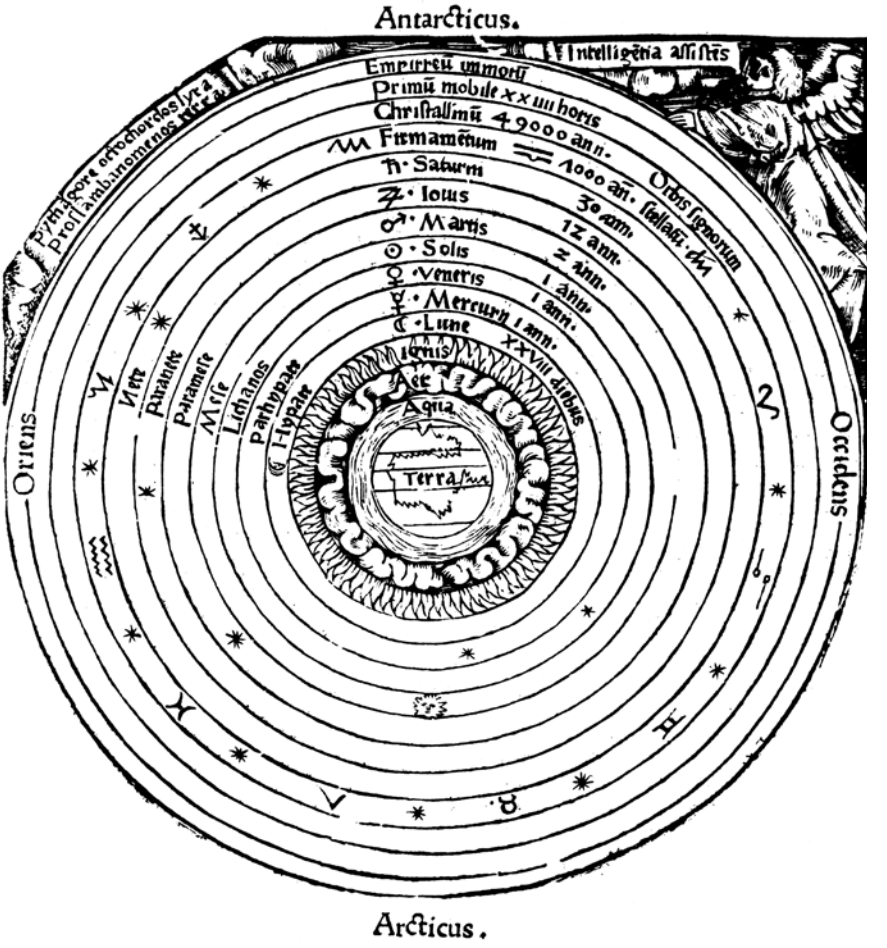

FIGURE 2.10 *A representation of cosmic harmony from Johann Eck's edition of Aristotle's* Libri de caelo. IV, *Augsburg, 1519.*

is the opposite of being.[236] Following Plato, the world must have the most perfect shape, which is that of the sphere, because otherwise it would not be "maximally uniform, spacious, indissoluble, and agile, without void and moving without collision".[237]

236 *CiT* XVI, 63v, corresponding to *Tim.* 31a–b, 55c–d.

237 *Sit autem figura mundi sphaerica: sic enim est maxime uniformis, capax, indissipabilis, agilis, atque ita nec aliter potest moles in mole, et sine vacuo collocari, et sine offensione moveri. CiT* XVI, 63v.

Some scholars, as Allen (2003, 241) observes, have argued that Ficino's light metaphysics, in which the most prominent place in the cosmos is attributed to the Sun, must be interpreted as a significant transitional stage between a geocentric and a heliocentric cosmology.[238] Yet the *Compendium*, which engaged Ficino's attention until the end of his life, adheres to a hybrid Platonic-Aristotelian universe of homocentric spheres with Earth at its centre.[239] The fact that the Sun plays a prominent role in both its metaphysics and its musical magic is no compelling evidence that Ficino anticipated a modern scientific heliocentric world view.

In the centre of this representation of the cosmos, the four elements—with which Ficino dealt in his explanation of the discipline of geometry—are arranged in a harmonic group of four concentric spheres: earth in the centre is followed by water, air, and fire. Although they are represented here only in the sublunary sphere, Ficino, following *Tim.* 51b–e, is of the opinion that they are also present in the intelligible realm as independent real forms or ideas.[240] These ideas of the four elements belong to the archetypal harmonic model of the cosmos. As such they are objects of intelligence, not of sense perception. Subsequently, the spheres of the seven planets are represented in Pythagorean order from the Moon, through Mercury, Venus, the Sun, Mars, and Jupiter to Saturn. Even though in chapter XXXV of his *Compendium* Ficino explicitly gives preference to the Platonic order in which the Sun directly follows the Moon, this diagram, for the most part, accurately represents his view of the harmony of the spheres.[241]

The planetary spheres are located under the sphere of fixed stars, which contains the signs of the zodiac and the crystalline sphere, which is added to bring the number of celestial spheres up to ten, in order to accommodate the mediaeval hierarchy of nine angelic choirs or intelligences that Ficino adopted from his predecessors.[242] In Ficino's view, the highest two represented spheres are merged into the realm of the Empyrean, that is, the dwelling of the Architect-Musician of the world, whence he issues his commands. Given God's

238 Of central importance for Ficino's conception of the Sun as the centre of the cosmos were Emperor Julian's *Hymn to Helios* and the eighth Orphic *Hymn to Helios*. For Ficino's ideas about the Sun, see Ficino 1994; Walker 1958, 18; and *Le Soleil à la Renaissance* 1965, 576ff. The question of whether Ficino's metaphysical theory of the central place of the Sun contributed to the transformation of a geocentric to a heliocentric universe is addressed, for example, in Garin 1990, 255–295.

239 *CiT* XXXVIII, 75^{v}.

240 *CiT* XXIIII, 65^{v}.

241 *CiT* XXXV, 74^{v}.

242 *CiT* XXVIII, 68^{r}.

immeasurability, in a metaphysical sense this region should stretch out indefinitely, but here it is confined by the borders of the diagram.[243] As discussed above at 2.3.1, it is not completely clear whether Ficino conceived of God as being present in the physical cosmos or as being somewhere outside.

Nowhere in his *Compendium* does Ficino address in great detail the role of the angelic intelligences in the Creation and preservation of world harmony. The presence of angelic intelligences is clearly a medieval inheritance, which crept into his interpretation of the *Timaeus*.[244] The early Church Fathers believed that God committed the care of men and all things under the Heaven to angels, the first created beings, who exercise the Providence of God over Creation. In medieval *Timaeus* commentaries they were often equated with the sons of the Demiurge in order to align Plato and the Bible.[245] Although the Bible itself does contain some references to angelic orders, a specific hierarchy of spirits, divided into nine orders, was first elaborated by the writer known to Ficino as Dionysius the Areopagite and to modern scholars as Pseudo-Dionysius. His text set forth a scheme of Creation based on degrees of illumination, including the nine orders of angels subject to the Trinity: Seraphim, Cherubim, and Thrones (hierarchy of the Father); Dominions, Virtues, and Powers (hierarchy of the Son); Principalities, Archangels, and Angels (hierarchy of the Spirit). The function of the first hierarchy is the contemplation of God. The function of the second, the category referred to in this diagram, is to move the heavens and to carry out the will of God the Father. The function of the third is the care of mankind.[246] It may be concluded that angels are associated with Christ, charged, in Ficino's interpretation of John 1:1, with carrying into effect the will of God the Father as the divine Word or (harmonic) 'Logos'.[247]

We are now able to explain the angelic figure in the upper-right corner of figure 2.10 in terms of Ficino's conception of cosmic order: this assisting angel places his helping hand on the outermost sphere, and thereby he converts into physical fact God's will to create a living and moving cosmos—the harmonious motion of the spheres. The motion of the spheres in medieval cosmology and

243 *CiT* XXXXI, 77^{r}.

244 Angelic intelligences are discussed at *CiT* XXVIII, 68^{r}, and Muses at *CiT* XXVIIII, 69^{v}. For medieval concepts of celestial movement, see Grant 1994, 517–528.

245 See Allen 1987 (1995), 416ff.

246 Ficino believed him to be Dionysius the Areopagite of Saint Paul's Epistles. Modern scholarship dates his writings to c. 500 CE. For the celestial hierarchy, see Pseudo-Dionysius 1987, 143–192. Ficino, who translated the *Celestial Hierarchy* into Latin, discusses Pseudo-Dionysius's angelic hierarchies in further detail in *De christiana religione* XIV. See Ficino 1576 (1962), vol. 1, 19ff.

247 *CiT* XXXXI, 77^{r}.

music theory was often represented as the eternal angelic song of praise for the Creator.[248] Ficino believes that angels and demons, as intermediaries, are still providing a bridge between the intelligible realm and the physical realm, as well as a link between God and man. However, unlike mediaeval interpreters of the harmony of the spheres, who combined the Greek planetary symphony with Christian angelic song, he does not attribute a musical role to the angelic choirs in his view of cosmic harmony.

The *Compendium* deals with world harmony in an ambiguous way: sometimes Ficino uses the concept of cosmic sympathetic vibration and sometimes he prefers to discuss harmonic processes in the world in terms of angelic and demonic interplay. One possible explanation for this ambiguity is that Ficino tries to combine in his *Compendium* a strictly naturalistic view of the universe, which emphasizes natural law and runs the risk of determinism, with a Christian view that is based on a certain conception of God's unlimited freedom to interact with his Creation. Hence, sympathetic vibration fits his theory of natural harmonic law, whereas angels as messengers from God guarantee the Creator's freedom.

The diagram evidently expresses the well-known doctrine of the music of the spheres, which linked music theory with astronomy. In essence, this is a Pythagorean doctrine postulating harmonious relationships among the planets governed by their proportional speeds of revolution and/or by their fixed distance from Earth. It further evinces belief in a universe ordered by the same numerical proportions that produce musical harmonies in earthly music.[249] Whatever the different interpretations of the specific character of the music of the spheres, there is no doubt that Ficino firmly believed in the existence of an inaudible cosmic music in which each planet plays its individual but complementary note in a universal symphony. The label in the upper left of figure 2.10, which mentions "the eight-chorded lyre of Pythagoras, with Earth playing the lowest note", can be equated therefore with "the celestial lyre of Apollo" referred to in Ficino's *Compendium*.[250]

Ficino's reads *Tim.* 36b through the lens of Plato's *Republic* X, which recounts the famous vision of Er and describes eight heavenly spheres whirling concentrically around the spindle of Necessity.[251] In the myth of Er a siren sits on each

248 For a detailed account of the medieval reception of the doctrine of the harmony of the spheres, see, e.g., Haar 1961, 234–298 and Hammerstein 1962, 116–144.

249 See Haar 2007–2009.

250 *CiT* XXVIIII, 69^{v}.

251 Ficino used the narrative structure of an aural dream of world harmony as presented in Plato's myth of Er and Cicero's *Dream of Scipio* also in one of his letters. For this letter, see

sphere, singing a single note of the cosmic scale, and the eight notes together form a single harmony.[252] In the tradition of the harmony of the spheres, these eight sirens were very quickly conflated with the Nine Muses and nine angelic choirs of other traditions, so that the Muses and angels could be integrated as intermediary causes in the view of the universe as a musical Creation. Ficino, who inherited these traditions, passes on the idea that the harmonic ratios of the spheres "comply with the Nine Muses".[253] In his interpretation of the notoriously difficult and obscure *Tim.* 35b–36b, he uses the more accessible account of the music of the heavens in the myth of Er as a key:

> Even if in another place and in accord with the opinion of some Pythagoreans I have considered another order of the planets, yet [here] I reckon as more probable the Platonic [order]. By means of this order [given at *Tim.* 35b–36b] the mysteries about the heavenly spheres can perhaps be understood, which in the tenth book of the *Republic* are hidden away very obscurely.[254]

Ficino evidently does not doubt that both myths are united in their cosmology. Yet from antiquity up to recent times there has been an ongoing debate about the relationship between Plato's cosmogonic myth in the *Timaeus* and the myth of Er in the *Republic*. Cornford (1937, 72) took up the position that there is no strong connection between the two. He argued: "It should be noted that nothing is said, here or elsewhere in the *Timaeus*, of any music of the heavens that might be audible to human ears. Plato, no doubt, had in mind this old Pythagorean fancy; for it figures in the vision of Er in *Republic* X. But in the *Timaeus* the harmony resides in the structure of the soul; it is not connected with audible tones, whose pitch had been imagined as depending on the relative speeds of the planetary motions". Furthermore, Cornford chides his famous colleague Taylor (1928, 164), who, Cornfield says (1937, 72n1), "imports the music of the heavens into the *Timaeus*, and then attributes to Timaeus a form of the doctrine which is in 'absolute contradiction' with his astronomy". Whatever interpretation of the myth of Creation in the *Timaeus* is accepted

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Ficino 1576 (1962), 816ff. For an English translation, see Ficino 1975–2009, 5 (1994): 23–30.

252 *Republic* 616c–617b.

253 *CiT* XXXIII, 72^{v}.

254 *Etsi alibi ex nonnullorum Pythagoricorum opinione, alias intervallorum mensuras recensui, Platonicas tamen probabiliores existimo. Per haec autem forsan intelligi possunt, quae in decimo de Republica de sphaeris obscurius involvuntur. CiT* XXXV, 74^{r}–74^{v}.

nowadays, it is notable that Ficino's peculiar interpretation of *Tim.* 35b–36b has remained a dominant voice.[255]

Along with Plato's original texts, Ficino often consults Macrobius's *Commentary on the Dream of Scipio* to solve interpretative difficulties in Plato's conception of the music of the spheres.[256] In line with Macrobius, Ficino applies the numbers of the World-Soul to the planetary bodies, calculating planetary distances by multiplying the basic numbers of the Lambda (fig. 2.8) and giving 9 to Mars, 8 to Jupiter, so that the "heavier planets Jupiter and Saturn [are] each to be designated by solid numbers".[257] Furthermore, he defends the Platonic order in which the Sun appears next to the Moon, arguing that the "machinations of Ptolemy" have been disproved by the great mathematician Geber (i.e., Jabir ibn Aflah), who with "meticulous measurements and precise instruments proved the Sun to be closest to the Moon".[258]

There seems to be no doubt that Ficino believed in the real existence of the music produced by the proportionally spaced planetary spheres. He declares that the planets, as parts of the cosmic body of the World-Creature, pulsate in musical proportion as a 'celestial lyre', with low tones produced by slower motion; and higher tones, by faster movement.[259] As analysed by Pennuto (2000, 311–313), Ficino discusses two scales which were traditionally attributed to the planets: the first, attributed to Nicomachus, is based on annual planetary motion and ascribes the lowest tone to Saturn, and the second, attributed to Macrobius, is based on daily planetary motion and ascribes the lowest tone to the Moon, with the other planets following in order.[260]

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255 For a short introduction to the reception history of Ficino's *Compendium*, see Etienne 1998, 3–28.

256 Further evidence for Macrobius as one of Ficino's main sources is found at *TP* XVII.ii, where he quotes *In somnium Scipiones* 1.6.66–76 and 1.6.43–44. See Ficino 2001–2006, 6 (2006): 22–25.

257 *Et quantum a terra ad Martem, octies tantum a terra ad Iovem. Quantumque a terra est usque ad Iovem, septies et vicies tantum a terra usque ad Saturni circum. CiT* XXXV, 74^{r}.

258 *CiT*, XXXV, 74^{v}. Jabir ibn Aflah was a twelfth-century astronomer who accused Ptolemy of wrongly placing Venus and Mercury between the Sun and the Moon. See Haar 1961, 352. For the astronomy of Jabir ibn Aflah, see Duhem 1957–1959, vol. 2, 172ff. In establishing the order of the planets, Ficino follows Neoplatonist sources such as Macrobius's *Commentary on the Dream of Scipio*, in which the Moon is directly followed by the Sun. See Macrobius 1952, 103.

259 *CiT* XXVIIII, 69^{v}. The metaphor of the cosmic lyre is common in the *Timaeus* commentary tradition. See, e.g., Calcidius 2003, 251–253.

260 The two main systems relating the tones of the Timaean scale to the order of the planets are handed down by Boethius. Boethius reduced the abundance of ancient theories

Well aware of the inaudibility of the music of the spheres, Ficino tries to substantiate his preference for Macrobius's scale deductively. In his argumentation he seems less interested in the precise character and order of the planetary scale than he is in the overall harmonic design by which God created the planetary spheres. Accordingly, he continues to argue that the music of the spheres results from the proportional speeds of the planetary revolutions, as well as from other types of cosmic order found in the planets:

> And we will find that low sounds in the heavens are mixed with high [tones], and that the same spheres give out a high tone by the one motion and a low tone by the other. In turn, we will find that from mighty spheres are generated mighty tones, from divine spheres are generated divine tones, and from multiple revolutions are generated tones in an equal multiple proportion. And just as beyond the seventh tone [of the cosmic scale] there is a return to the same tone, so above the separate circuits of the seven planets all tones are returned to one circuit, which wondrously embraces such a seven in itself.[261]

The remark that each planet plays its individual but complementary tone in the celestial symphony of the spheres is, of course, again a reference to Plato's myth of Er as well as to Cicero's *Dream of Scipio* and Macrobius's commentary on it.[262] Hence, on the basis of the proportions created by their different speeds, weights, and presumably also their different distances from Earth, each planet is associated with a tone of the Pythagorean scale, and the starry heaven above the planets is associated with the octave.

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of the harmony of the spheres to the ones of Nicomachus and Macrobius. Nicomachus attributed to Saturn the lowest tone and to the Moon the highest tone in his *Encheiridion harmonikēs* (*Handbook of Harmony*), while Macrobius presented a reverse order in his *Commentary on the Dream of Scipio*. See Haar 1961, 165–182. For *The Manual of Harmonics*, see Nicomachus 1975.

261 *Inveniemusque graves in caelo sonos mixtos acutis, eosdemque orbes altero quidem motu acutum tonum edere, altero vero gravem. Item ex ingentibus globis ingentes, ex divinis divinos, ex multiplicibus revolutionibus pari ratione multiplices. Et quemadmodum ultra septimum sonum revolutio fit in idem, sic super planetarum septem distinctos orbes, omnia revolvi in unum orbem, in seipso eiusmodi septenarium mirabiliter complectentem. CiT* XXXII, 72r.

262 In order to get rid of the problem of attributing eight planetary spheres to seven tones, Macrobius gave two of them the same tone, and Ficino adopts his solution. See Macrobius, *Commentary on the Dream of Scipio* II.iv.8 (Macrobius 1952, 198–199).

In his attempt to link planets with tones, however, Ficino runs into insoluble problems.[263] On the basis of fifteenth-century astronomical ideas, he continues his discussion on the music of the spheres as follows:

> However, where we said that Saturn is similar [in Nicomachus's theory] to the Hypate [i.e., lowest tone], we do not mean that it is slower than the Moon, for it is quicker in its motion not only from the east but also to the east. For [the size of] its orbit exceeds that of the Moon by a greater extent than the time of its orbit exceeds the time of the Moon's orbit. However, it is slower than Jupiter and Mars; Mars is the fastest of all. But we should not assign the principal causes of the low and high velocities of the heavenly bodies to any other origin than their movers themselves. For to the extent that such orbits and so many orbits are within the movers, so they issue forth in their chariots as such and as so many. In fact, perhaps certain differences in their brightness, scarcely noticed, have arisen from the very differences among their intelligences.[264]

This defence of the existence of a music of the spheres goes wrong when Ficino tries to integrate the astronomical finding that Mars is the fastest of all planets. If the fastest orbital velocity is linked with pitch, then the cosmic scale should begin or end with Mars. The fact that Mars is one of the middle planets in the geocentric universe should mean that it is impossible to attribute a cosmic scale to the order of the planets. Furthermore, by indicating that "so many orbits are within the movers", Ficino demonstrates his own awareness that the movements of the planets are far more complicated than can be described by simple, perfect circles. He explains, in addition, that Plato attributed "a multiple movement to the planets in addition to spherical motion—forwards,

263 For his outstanding analysis of Ficino's concept of *musica mundana*, Haar used the incomplete and corrupted edition of Ficino's *Timaeus* commentary of 1576, which lacks some crucial passages concerning Ficino's ideas about complex planetary movement that are difficult to reconcile with the doctrine of the harmony of the spheres. See Haar 1961, 343–360.

264 *Ubi vero Saturnum diximus, Hypati similem esse, non intelligimus tardiorem esse quam lunam. Est enim velocior non solum motu ab ortu, sed ad ortum. Orbis enim eius maiore spatio superat orbem lunae, quam tempus circuitus eius superet circuitus lunae tempus. Est tamen Iove tardior atque Marte; Mars omnium velocissimus. Tarditatis vero velocitatisque caelestium praecipuas causas, non aliunde potius quam a motoribus ipsis assignare debemus. Quales enim et quanti in motoribus intimi sunt circuitus, tales quando tantique in suis illis curribus provenerunt. Forte vero differentiae quaedam lucis vix deprehensae, ab ipsis intelligentiarum differentiis processere. CiT* XXXII, 72r.

backwards, upwards, downwards, northwards, and southwards"—and that the planets "in addition to their spherical orbits have a proper and free movement in the direction of the Elysian Fields".[265] Although Ficino demonstrates that it is important to recognize the unique physical aspects of the heavenly bodies, ultimately this kind of astronomical multiplicity can be reduced to the simple forms of the circle and the sphere. Given that Ficino's *Compendium* is written in the first instance to explain and defend Plato, it is evident why Ficino terminates his discussion on this point and leaves unresolved the question of the precise manifestation in the cosmos of the harmony represented by the *Timaeus* scale.

In order to reconstruct the way in which Ficino, despite all the interpretative difficulties, might have linked planets with tones, let us first have a look at the periods of revolution. In figure 2.10 the period of revolution is indicated at the right for each of the celestial spheres. In chapter XXXII of his *Compendium* Ficino does not discuss the orbital velocities in great detail. However, he must have known them from his sources. In medieval debates on the relationship between the celestial motions and the great year, it was often argued that the sphere of the Moon revolves in twenty-eight days; that of Mercury, in one year; Mars, in two years; the sphere of fixed stars, in one thousand years; and the crystalline sphere, in the enormously long time of forty-nine thousand years.[266] According to *Tim.* 36c the planetary spheres rotate from the Occident, the west, to the Orient, the east (i.e., from the right-hand side of the diagram off the page towards the left-hand side).[267] The sphere of the fixed stars, by contrast, rotates in the opposite direction, from east to west, and its period of revolution is only twenty-four hours, to account for the diurnal rotation of the heavens.

Ficino explains in chapter XXXII of his *Compendium* that this comparison between a planet and a tone of the scale is based on the comparison between pitch in music and the orbital period of a planet in astronomy. But given the inaudible nature of the planetary symphony, he recognizes the difficulties in attributing a tone to a planet. Aware of the speculative and somehow arbitrary character of the relationship between tones and planets, he

265 *Plato cum epicyclos excentricosque nullos inducat, motus tamen multiplices planetis attribuat ultra sphaerae motus: ante, retro, sursum, infra, ad septentrionem atque meridiem, cogimur . . . planetas dicere ultra sphaerae tractum habere insuper proprium liberumque per Elisios campos incessum. CiT* XXXVIIII, 76v.

266 For the historical debate on the incommensurability of the celestial motions and the great year, see Grant 1994, 498–513.

267 The south is at the top and north at the bottom, in contrast to the customary way of orienting a map today.

endorses Macrobius's order, which from a human perspective is the easiest to understand:

> But in the daily motion [of a planet] and its quickness or slowness, we are going to in turn compare the Hypate [i.e., the lowest tone of the scale] with the Moon and the successive tones with the higher planets.[268]

From chapter XXXII of the *Compendium* the periods of revolution of the other planets can be linked with the remaining tones of the Pythagorean scale. In figure 2.10 printed on the left-hand side within each sphere is the Greek musical note which that planet supposedly plays in the cosmic scale: *hypate* (lowest tone) for the Moon, *parhypate* for Mercury, *lychanos* for Venus, *mese* for the Sun, *paramese* for Mars, *paranete* (or *trite*) for Jupiter, and *nete* (highest tone) for Saturn.[269]

Although the precise character of Ficino's conception of the music of the spheres will always remain elusive in principle, it might have been the case, as Haar (1961, 356) has claimed, that Ficino projected the polyphonic music of his own time onto the heavens, rather than the notes of a single scale. Building on Haar's thesis, Tomlinson (1993, 77) has argued that a structural transformation took place in the tradition of the harmony of the spheres around 1500, triggered by the traditional gap between ideas about musical ethos and cosmology. By attributing musical modes instead of the notes of a single scale to the planets, music on Earth could now be used in all kind of astrological-magical musical practices. Perhaps, rather than a structural transformation, this can also be interpreted as being an example of actualizing one of the possibilities that have always been dormant, as the single notes were often seen as the keynotes of a particular mode or scale. The Plotinian touchstones for Ficino's conception of "the celestial dance of the stars", discussed at 2.5.2, as well as recent secondary literature on the medieval reception of the doctrine of the harmony of the spheres, corroborate this reading.[270]

In addition, it can be argued that Ficino may have regarded the Pythagorean consonances as simultaneously sounding chords rather than melodic intervals:

> For if from one sounding lyre a tone suddenly is communicated to another lyre which is tuned in the same way, and if from the vibrating

268 *Sin autem in motu diurno eiusque celeritate vel tarditate, vicissim Hypaten cum luna sequentesque deinceps cum planetis superioribus comparabimus. CiT* XXXII, 72r.

269 See Macrobius, *Commentary on the Dream of Scipio* II.iv.1–8 (Macrobius 1952, 197–199).

270 See, e.g., Haar 1961, 165–327, and Ilnitchi (Currie) 2008.

> string a similar vibration is immediately passed on to the [other] string which is equally tuned, there should be no doubt that from many mixed tones which are joined in a certain proportion, suddenly a form [i.e., chord] is generated, which is, as it were, common to all [different tones of which it consists], through which the many are one, and therefore, they can be perceived by the senses as one, and they come together in a single effect.[271]

Although the form "through which the many are one" might refer simply to unisons and octaves, as Haar (1961, 356–357) has suggested, Ficino might also have had combinations of different tones in a chord in mind, like those used in the music of his own time. It seems probable, therefore, that Ficino refrained from speaking in detail of a celestial scale, not because he was unable to solve certain interpretative difficulties or because he did not take heavenly music seriously, but rather because he imagined the music of the spheres to be a harmony of simultaneous sounds.

In formulating his theory of cosmic harmony, Ficino clearly follows Ptolemy's *Tetrabiblos* I.20 in arguing that each sign of the zodiac has a ruling planet.[272] He also borrows ideas stated in *Tetrabiblos* I.4–8[273] about how each sign of the zodiac is associated with one of the four elements as well as with an angelic order described in Pseudo-Dionysius's *Celestial Hierarchy*.[274]

In order to complete the reconstruction of Ficino's doctrine of the music of the spheres, we have to find an explanation for how the stars of the sphere of the zodiac can miraculously comprehend the seven tones of the diatonic scale. From a reference in his *Compendium* XXXII to the eighth book of his *Letters*, presumably to the letter *De Rationibus Musicae* (*On Musical Ratios*), we may deduce that Ficino complemented Macrobius's interpretation of the music of the planetary spheres with Ptolemy's view of the music of the

271 *Nam si ex sonante cithara in citharam similiter temperatam resonat repente nonnihil, et ex chorda vibrata, statim in chordam aeque tentam transit vibratio similis, cui nam dubium sit ex pluribus vocibus una quadam ratione conflatis unam subito nasci quasi formam communem cunctis; per quam plura sint unum, ideoque ut unum percipiantur a sensu, et in unum quendam congrediantur effectum. CiT* XXXI, 71r.

272 See Ptolemy, *Tetrabiblos* I.20 (Ptolemy 1940, 91–97).

273 Ptolemy 1940, 35–45.

274 Pseudo-Dionysius 1987, 145–191.

stars.[275] In this letter, Ficino, following Ptolemy, attributes the seven tones of the diatonic scale to the twelve signs of the zodiac:[276]

> I certainly cannot pass over in silence the fact that if you start out from the very head of the twelve celestial signs and then wish to move through those that follow, you will find that the second sign falls away in some way from the first. And just as with notes we find the second dissonant from the first, so here we find that the second sign is in some way dissonant from the first. But then the third sign, as though it were the model for the third note, looks upon the first constellation with that friendly aspect which astronomers call sextile. The fourth sign, although dissonant, is but moderately so, as they say, and in the view of musicians this is the nature of the fourth note. Then the fifth constellation looks benevolently upon the first with a very friendly and agreeable aspect, thereby providing a model of the fifth note in music. Astronomers give the name 'trine' to an aspect of this kind and consider it most beneficial.[277]

Subsequently, in this letter Ficino attributes the sixth, the seventh, and the eighth tones of the diatonic scale to the sixth, seventh, and eighth signs of the zodiac, while he tries to reinterpret the astrological associations that contradict his own interpretation of the music of the spheres. To complete his theory,

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275 *CiT* XXX, 72^{v}.

276 The music theory in this letter is an addition to *CiT* XXXIII, 73^{r}, where Ficino refers to the letter. In this matter, Ficino presumably follows Ptolemy, *Harmonics* III.8–16 (Ptolemy 2000, 152–166, esp. III.9 at 154–175). However, the source could also have been Ptolemy's *Tetrabiblos*.

277 *. . . illud certe silentio preterire non possum, quod si ab ipso duodecim signorum celestium capite exorsus volueris deinceps per sequentia progredi, invenies secundum ibi signum a primo quodammodo cadere, atque non aliter quam in vocibus secundam a prima vocem percipimus dissonantem ibi quoque secundum illud primo quodammodo dissonare; sed tertium deinde signum quasi tertie vocis exemplar aspectu iam amico quem sextilem astronomi nominant primum sydus aspicere; quartum vero etsi dissonum, tamen ut aiunt dissonum mediocriter, qualis est apud musicos vocis quarte natura. Proinde quintum aspectu congruo admodum atque amico sydus primum feliciter intueri exemplar inde prebens quinte in musica vocis. Aspectum eiusmodi trinum astronomi nominant et iudicant admodum salutarem*. Epistola "De Rationibus Musicae ad Dominicum Benivenium". See, for the edition, Ficino 1973, 54–55; and for Farndell's English translation, see Godwin 1993, 163–169 (translation modified).

he links the ninth sign to the first sign and corresponding fundamental tone, the tenth to the fourth sign and fourth note, the eleventh to the third sign and third note, and, finally, the twelfth sign to the second sign and second note.

On the basis of the remark in this letter that "in particular, the third, the fifth, and the eighth tones, which are more pleasing than the rest", can be associated with the heavenly bodies, Haar (1961, 355), further developing a thesis of Walker's (1958, 14–19), has argued, correctly in my opinion, that for Ficino, the music of the spheres would have been above all a heavenly interplay, in which special conjunctions of beneficial planets in beneficial houses—that is, in relation to certain signs of the zodiac—were linked to musical chords composed of octaves, fifths, thirds, and sixths. Ultimately, Ficino's dynamic astrological-magical interpretation of the music of the spheres is based on the belief that whenever beneficial planets appear in a beneficial house of a sign of the zodiac, the multiplicity of the complex planetary movements will be temporarily removed and replaced by a beautiful, harmonious triad that reflects the archetypal harmony of the Creator.

To recapitulate, Ficino has developed the doctrine of the harmony of the spheres transmitted by his Neoplatonic predecessors into an all-embracing view of the universe as a musical Creation in which every planet is characterized by a kind of spiritual or intellectual power, which is directly derived from God. Given that the planets revolve in rational and regular orbits, they must have a kind of intelligence themselves, which is of a higher order than the fallible reason of mortal man. Furthermore, Ficino believed that stars correspond to people, animals, plants, and stones in the sublunar world through divine preordination. Because every living being in the sublunar world belongs to a particular star and its soul or demon, the macrocosm can be reflected in the microcosm, and vice versa (table 2.1).[278]

278 In this conceptual scheme, elements from Proclus's *In Tim.* and Ptolemy's *Tetrabiblos* and *Harmonics* are conflated with elements of Pseudo-Dionysius's *Celestial Hierarchy*.

TABLE 2.1 *A reconstruction of the all-inclusive network in Ficino's* Compendium *representing dynamic cosmic harmonic relationships.*

Sign of the zodiac	Ruling planet	Cosmic power	Element	Angelic order	Demonic order (demons present in all spheres)
Aries	Mars	active animating power	fire	Virtues	beneficial demons planetary demons
Taurus	Venus	passive vegetative power	earth	Principalities	demons of human souls harmful demons
Gemini	Mercury		air	Archangels	
Cancer	Moon	vital power	water	Angels	
Leo	Sun	rational power	fire	Powers	
Virgo	Mercury		earth	Archangels	
Libra	Venus		air	Principalities	
Scorpio	Mars		water	Virtues	
Sagittarius	Jupiter	active Intelligence	fire	Dominions	
Capricorn	Saturn	seeing Intellect	earth	Thrones	
Aquarius	Saturn		air	Thrones	
Pisces	Jupiter		water	Dominions	

2.6 Conclusion

Ficino's effort in his *Compendium* to bring cosmology and music theory together in one view of the universe as a musical Creation, and of music as an art with a cosmological range, makes his commentary unique. As Etienne (1998, 26) notes, Ficino's subjective interpretation of the *Timaeus* is often simply dismissed as defective.[279] But we may now conclude that it would simply be naive to expect that Ficino as a humanist and philologist would pass down Plato's ideas about cosmic harmony without any kind of personal involvement. It is precisely in Ficino's personal reflections and interpretative struggles that the value of his interpretation of the idea of world harmony can be found.

We may now tentatively conclude that Ficino's view of world harmony exemplifies a way of theorizing about nature that is determined by music-theoretical, religious, philosophical, and anthropomorphic concepts, which is

279 See Etienne 1998, 5–30.

surely typical for the Renaissance. In reverting to the ideas of the Neoplatonists, Ficino broke with the predominant medieval static conception of the cosmos and emphasized the dynamic interplay of harmonizing powers in his view of the universe. Yet his main interest continued to be the way in which the pure, mathematically determined nature of celestial harmony was imitated in things in nature on Earth—especially in earthly music, as I will discuss in chapter 3—as was the case for most of his predecessors.

Ficino conceived of the cosmos as a network of hidden supernatural powers which could sometimes be deduced through analogy with observed phenomena in nature. Given that quantitative and qualitative aspects of these dynamic processes in the cosmos were intertwined in his view, the mathematics of his *Compendium* can best be studied from its numerological perspective. Only when one goes along with his belief in a numerical tuning of the world can one comprehend why it became a ruling passion for Ficino to understand the Timaean division of the World-Soul into harmonic intervals. He, moreover, continued to explain world harmony in a twofold way: in terms of supernatural powers (i.e., God, angels, and demons) and in terms of inherent natural forces (which could not be distinguished). Hence, in its fundamentally ambiguous philosophy of nature, the view of the universe as developed in the *Compendium* is still very close to the supernatural conception of his ancient and medieval predecessors.

Demonology, however, was risky territory in fifteenth-century Christian Italy.[280] By, perhaps strategically, failing to distinguish his own ideas concerning demons from those of his predecessors in some of the quotations and paraphrases analysed above, Ficino benefited from the theoretical possibilities offered by their theories without running the risk of approving them explicitly. By integrating both Plotinus's concepts of demons, cosmic Spirit, and cosmic sympathetic vibration and Pseudo-Dionysius's concept of angelic intelligences into his theory of cosmic harmony, Ficino added to its explanatory power a whole arsenal of possibilities for magic, astrology, praise, and prayer, which could be beneficially used to reveal the secrets of nature. Never before was the gap between Heaven and Earth vaulted by so many theoretical bridging concepts and analogies. And never before had a philosopher created the impression of seizing the key to knowledge of the music of the spheres. Yet by supplementing quantitative numbers, ratios, and proportions with so many other qualitative entities that bridged the world of concept and the physical world, Ficino's vision of the universe as a musical Creation became theoretically opaque and risked losing the explanatory power of the original Timaean

280 See Clark 1997.

theory of the harmonic design according to which the Demiurge (*Tim.* 35b–36d) had created the planetary spheres.

The fact that many references to demons in Ficino's *Compendium* were removed or transferred to the 'work-in-progress part' of the commentary titled "Distinctiones" cannot, in my opinion, be interpreted as if Ficino were moving towards a more scientific philosophy of nature but must be seen as a precautionary measure aimed at avoiding conflict with official church doctrine. The theory of cosmic sympathetic vibration, for example, is not used to replace the theory of demonic magic; rather, both theories go together to explain world harmony in all its dynamic aspects, including transitive magic.

In addition, this chapter provides corroborative evidence for Allen's (2003, 241ff.) view that Ficino was not one of the founders of modern science. Neither is it particularly instructive to interpret his *Compendium* as an important step towards the mathematization of space associated with the birth of modern science. Having said that, the way in which Ficino studied nature from the perspective of four harmonizing powers—for example, by adopting a theory of cosmic sympathetic vibration—might well have stimulated innovative thought about structuring cosmic powers such as causality, gravitational forces, and magnetism in nature.

In theoretical treatises about music up to and including the Middle Ages, the debate about world harmony had been abstract and had led to the formulation of musical theories that had no strong connection with the reality of musical experience. Musical theories had, moreover, often been based on principles lying outside the sphere of music. Scholars like Ficino, by contrast, tried to develop a theory of cosmic harmony which could also offer a rational justification for the actual use that musicians in their own time were making of the musical intervals. Ficino firmly believed that such a theoretical foundation could be found in the Greek science of harmonics, especially in the account of it given in the *Timaeus*. Pythagorean harmonics, as well as Greek monodic music, functioned in Ficino's mind as a lost paradise, which he sought to revive, even though he was living and working in a time when the Aristotelian world view was the dominant one and polyphony was the norm in the world of the Italian cultural elite. Nevertheless, as "a boldly experimental thinker, the kind of thinker who needs to rethink and re-imagine what dogma means, who needs to reinvent dogmas and fill them with new meaning" (Hankins 2005b, 391), Ficino did not follow Pythagorean music theory slavishly but updated it to the philosophical, musical, and scientific standards of his own time.

For Ficino, the doctrine of the music of the spheres, where cosmic order and music theory are tightly intertwined, still provided the most coherent explanatory model for the world. Using a wide variety of sources, read with ingenious

interpretative strategies, Ficino did whatever he could to defend the view that the *Timaeus* offered an aesthetically pleasing and mechanically plausible account of the world, which could be applied beneficially in his time if only readers updated the concepts of cosmic order and music theory presented in the dialogue. As for cosmic harmonic order, alternatives to a geocentric cosmos that was based on numbers, proportions, and harmonies—for example, an infinite or heliocentric universe with irregularly spaced planetary spheres or with irregular motions—were inconceivable for Ficino, because they would have seemed to lack order. Against the backdrop of the dominant beliefs of his time, Ficino could portray the cosmos only in a religious way with a place in it for God as its creator, whose divine realm was directly connected through a cosmic scale with the realm of His Creation.

As for his music theory, Ficino's personal interpretation of Plato's conception of the harmony of the spheres found expression above all in his transformation of the Pythagorean tuning system given in the *Timaeus* at 35b–36b into the just intonation used in his time. Though Ficino thought that he had successfully updated Timaean music theory, in fact he ended up with an inconsistent theory of world harmony, which necessarily had to embrace big numbers and complex ratios. As a musician he advocated a modern practice, with a pragmatic, instrumental rationality that defended just intonation as a necessary fact of modern hearing, yet as a music theorist and natural philosopher he tried to defend the very Pythagorean music theory that he considered inaccurate in the field of contemporary music.

Ficino contributed something small but significant to the rationalization of musical materials that—according to Max Weber—took place during the Renaissance, a contribution that has gone unnoticed by scholars such as Fubini (1990, 110–122). This study corroborates Haar's (1961, 356) conclusion that the peculiar character of the musical treatise included in the *Compendium* testifies to the growing tendency to give priority to perceived sound rather than calculated ratio whenever traditional numerological explanations for contemporary musical experiences and observations failed. In addition, this study corroborates Tomlinson's (1993, 84–89) conclusion that Ficino not only privileged tones in the cosmic scale which were accepted as consonances in fifteenth-century music theory but also transformed the music of the spheres into a dynamic kind of music in which the variable movements of the planets in special astrological moments form the beautiful chords based on the triad in which an echo of the perfect harmony of the Creator could be heard.

By abandoning the Pythagorean doctrine concerning the relationship of number and consonant sound for the sake of tuning and temperament, the epistemological foundation for knowledge of cosmic order was partly

deconstructed in Ficino's *Compendium*. Ficino may not have been aware of the explosive power of updating the definition of consonance, but—as will be analysed in further detail in chapter IV—in doing so he caused problems for the doctrine of the harmony of the spheres. At the end of the sixteenth century, the recognition of these problems contributed to the insight that the harmonic design according to which the Creator had made the planetary circles could be seen only as an ideological construct.

With the exception of some ideas, none of Ficino's innovative thinking about the harmony of the spheres made a lasting contribution to cosmology, philosophy of nature, or music theory. This is not surprising, because Ficino's revival of the *Timaeus* preceded the Copernican revolution as well as the separation of music theory in the sixteenth century from the traditional four mathematical disciplines. Yet before Ficino's interpretation of Plato's theory of cosmic order passed almost completely into oblivion, it was studied intensively by Francesco Patrizi, who tried to rescue it from a rising tide of very different ideas.

CHAPTER 3

Man as a Co-Creator of His Harmonic Nature

3.1 Introduction

By 1462 Marsilio Ficino had already written the first version of his *Compendium in Timaeum*, but before turning to Plato again he began to study the Orphic hymns.[1] He not only translated these works but, as noted by Walker (1958, 22) and many scholars after him, also sang them to his own accompaniment on the lyre, with the intention of reviving the lost magical musical practice of Orphic incantation.[2]

As we have seen at 2.2.1, Ficino takes the position that the greatest of the ancient pagan thinkers, Orpheus among them, were initiated into the secrets of the cosmos. He firmly believes in the existence of the *prisca theologia*, an esoteric tradition of divine learning that was passed down from wise biblical men, like Moses in the book of Genesis, to pagan authorities of great wisdom and piety, such as Plato in his *Timaeus*. The divine Orpheus, Pythagoras, and Plato are believed to represent not only a supreme kind of human reason but also a kind of non-verbal 'musical' wisdom identical to the wisdom of Moses. The latter received the Ten Commandments directly from God to serve as principles of moral behaviour for the human race.[3] They constitute a philosophy of life which is in accordance with the harmonic laws of Creation and which is claimed to be identical to ancient Greek philosophy. Ficino places his musical anthropology in the coordinating framework of this ancient theology in such a way that it grants music—particularly some privileged consonances known to the initiated musician—the status of a lost kind of secret knowledge. In addition, the narrative framework confers on man the ability to discover the structure of the cosmos and hence its secret powers, and to heal himself.[4]

1 Haar 1961, 343.

2 For Ficino's attempt to revivify Orphic musical practices, see, e.g., Walker 1953, 100–120; 1958, 22–24; 1985, 17–28; Klutstein 1987, 21–45, 61–109; and Voss 2000, 2002. For the place of Orpheus in Italian Renaissance culture, see Harrán 1990. For the reception of Ficino's theory of song, see Brancacci 2002; and Wear 2011.

3 The Ten Commandments are recorded in the Bible in Exodus 20:1–17 and Deuteronomy 5:6–21.

4 For an analysis of Ficino's portrayal of man, see Kristeller 1943, 201–399.

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Music, the cosmos, and Orphic incantation are closely related in Ficino's *Compendium*, and this last activity determines to a large extent how he rethinks and reimagines the concepts of *musica humana* and *musica instrumentalis*—that is, how he reinvents psychological and music-theoretical dogmas and fills them with new meaning.[5] A connection between planetary harmony and astrological beliefs and practices had always been implicit in early Pythagorean thought, as well as in the writings of Neoplatonists such as Plotinus and Proclus and of Persian thinkers such as Avicenna and al-Kindi, whom Ficino sought to follow. But after these kinds of astrological and magical interpretations of the concept of world harmony had been condemned by some of the Church Fathers, they were suppressed in the majority of medieval treatises about world harmony. Their open adoption and development by Ficino, especially in his theory about music's power to shape and condition the human body and soul, give his *Compendium* its neo-Pythagorean-Platonic tone.[6] Or more precisely, the tension between scholarly, religious and astrological-magical beliefs determines its character to a large extent.

In chapter 2, we saw that Ficino imagined the Timaean discussions on harmonics and music above all as a science, a valid subject for intellectual study. Insofar as music is a science it can be regarded as close to, or even identifiable with, philosophy, when this latter term is understood as supreme knowledge of the cosmos. Yet in the *Timaeus* Plato implicitly drew a distinction between two kinds of music: a kind that can be heard and a kind that cannot. As noted by Fubini (1964, 39), at first sight Plato might seem to subscribe only to the latter as worthy of the philosopher's attention. Ficino closely followed Plato in his *Compendium* in maintaining that speculation about the kind of music that is dissociated from actual sound is, in a sense, what philosophy is about. This resulted in a fifteenth-century view of nature and music that accepted the general concept of world harmony as the Pythagoreans understood it: the

5 Following the structure of Plato's *Timaeus*, in which such topics as the sense of hearing, the human body and soul, health, and illness are dispersed over *Tim.* 64–92, the last chapters of Ficino's *Compendium* (Cap. XXXXV–XXXXVII), as well as a major part of the unfinished second part of the treatise, titled "Distinctiones", deal with these issues. For the classical treatment of Ficino's music philosophy, see Walker 1958, 3–29; and 1985, 131–150. For Ficino's music philosophy, see also Tomlinson 1993, 44–144; Boccadoro 2000, 2008; and Schadel 2001. In general, secondary literature on Ficino's philosophy of music focuses on his *De vita*, leaving his *Compendium* out of consideration. But there are exceptions. For the first pioneering studies on the music philosophy of Ficino's *Compendium*, see Kristeller 1947, 255–274; Haar 1961, 343–361; Oehlig 1992, esp. 111–144; Etienne 1998, 259–284; and Pennuto 2000, 2001.

6 Haar 1961, 344. For magic in Ficino's *De vita*, see, e.g., Copenhaver 1984.

harmony within earthly music echoes both the harmony of the world and the harmony within the human soul.

In his *Compendium* Ficino makes music a symbol of the Unity and divine order in which both the human soul and the entire world participate, each in their different ways. At the same time, Ficino is well aware that this is not the sort of music that musical practitioners are interested in. To remedy the one-sided interest in inaudible music in Plato's *Timaeus*, Ficino connects its theory of inaudible intelligible music with the Pythagorean concept of earthly music as a medicine for the human body and soul. This doctrine is only implicitly addressed at the end of the dialogue, at *Tim.* 87b–90d, without any direct reference to *Tim.* 35b–36d. In contrast to his great predecessors, who dealt only with Plato's conception of perfect inaudible harmony in their *Timaeus* commentaries (Calcidius's commentary treats the dialogue up to *Tim.* 53c, and Proclus's, up to *Tim.* 44), for the first time in the commentary tradition Ficino explores in great detail the Timaean discourse of the human body and soul. Because these explorations are the theoretical foundation of his interpretation of the Platonic doctrine of music's power to shape and condition the human body and soul, they are studied in detail in this chapter.

According to *Tim.* 47, a genuine 'musician' will be someone who has achieved perfect harmony within his soul. The sense of hearing plays an entirely subordinate role in this process, because it can distract human beings from a full understanding of 'music' in the sense of the science of harmonics, simply because it arouses pleasure. Music can be beneficially used only if someone seriously aims to harmonize his soul. Even if Plato at *Tim.* 80b refers to earthly music as an expression of divine harmony in mortal movement, the two kinds of music are not univocally connected in his philosophy. To remedy this lacuna, Ficino aims to demonstrate in his *Compendium* that Plato wrote the *Timaeus* with the idea in mind that the inaudible harmonic revolutions in the World-Soul, which are made visible in the planetary spheres, and the harmonic revolutions in the human rational soul have a direct relationship with audible, earthly music.

For Plato it was through music, intellectually conceived as the harmony of the spheres, that a human being might hope to refashion the harmony of the immortal principle of "these mortal living things", the purpose of human life on Earth as formulated at *Tim.* 42e.[7] But Ficino argues that this is only one line of thought in Plato's philosophy of music. Ficino seems to suggest in his *Compendium* that sometimes Plato is primarily concerned with the cosmological and mystical values that Pythagorean teaching attributed to number

7 *Tim.* 42e, in Plato 2000, 30.

(*Tim.* 35b–36b), and sometimes with the powers that can be attributed to music (*Tim.* 47b–e). Furthermore, in some passages Plato is particularly interested in music's potential in physical, spiritual, and moral education (*Tim.* 88c), whereas elsewhere he prefers to concentrate on the danger of the pleasure-giving qualities that have been traditionally associated with music (*Tim.* 47d). According to Ficino, Plato's *Timaeus* reflects all these strands of inquiry—be it extensively or briefly, affirmatively or negatively—and it is the duty of the commentator to organize them into a coherent music theory. Ficino is convinced that all aspects of the subject of music mentioned above must be taken into account in order to provide a coherent interpretation of the dialogue's philosophy of music.

Ficino takes the following passage in the *Timaeus* as a first point of departure for this specific interpretation of Plato's view of *musica humana* and *musica instrumentalis*:

> And harmony, whose movements are akin to the orbits within our souls, is a gift of the Muses, if our dealings with them are guided by understanding, not for irrational pleasure, for which people nowadays seem to make use of it, but to serve as an ally in the fight to bring order to any orbit in our souls that has become unharmonized and make it concordant with itself. Rhythm, too, has likewise been given us by the Muses for the same purpose, to assist us. For with most of us our condition is such that we have lost all sense of measure, and are lacking in grace.[8]

As a second point of departure for his reading, Ficino takes a contrastive passage in the conclusion of the *Timaeus*, where Plato states:

> The mathematician, then, or the ardent devotee of any other intellectual discipline, should also provide exercise for his body by taking part in gymnastics, while one who takes care to develop his body should in his turn practice the exercises of the soul by applying himself to the arts and to every pursuit of wisdom, if he is to truly deserve the joint epithets of "fine and good".[9]

For Ficino, the two fixed points of musical speculation in Plato's *Timaeus* would seem to be, on the one hand, the intelligible science of harmonics (i.e., a music that exists only in the mind with no connection to earthly music) and,

8 *Tim.* 47d, in Plato 2000, 36.

9 *Tim.* 88c, in Plato 2000, 84.

on the other, the sounding music of fourth-century Athens. The challenge of the musical section of Ficino's *Compendium* lies in demonstrating that Plato understood there to be a direct connection between the two. In this chapter I will analyse Ficino's reasons for believing that Plato saw musical education as the mediating factor that might enable human beings to bridge the gap between these two entirely different kinds of music.

In order to succeed in this attempt to reconcile Plato's various musical theories, Ficino must formulate a solution for an almost insoluble problem that the *Timaeus* posed for a music theorist or musician in the fifteenth century. For though many real examples survived of Greek architecture, literature, drama, and sculpture, as noted by Palisca (2006, 1), almost nothing remained of Greek music. Consequently, Ficino, as a Renaissance writer on music who envisaged a return to the musical performance practices of Greek antiquity, was actually chasing a chimera. Yet in this chapter I will argue that Ficino also drew certain advantages from the fact that it was not materially possible for a composer or musician to model his music on actual Greek examples, as a playwright or sculptor or architect might model their creations. Because the models in the field of music had vanished many centuries before, Ficino could now present his interpretation of the *Timaeus* as a solution for the break that, to his mind, had taken place in the musical tradition. He clearly believes that music as actually practised in Greek antiquity was everything except an abstract concept, although Plato recommended that earthly music should aspire to the quality of an abstraction by divesting itself of all arbitrary features. Ficino therefore argues that provided that one focuses on the musical essence, earthly music will become identifiable with the Pythagorean concept of cosmic harmony.

In this chapter, I will argue at 3.2 that the conception of a musical universe, discussed in chapter 2, is coupled with an ethical duty to comply as much as possible with the cosmos as a harmonic Creation. Man is given the task of actively developing latent dimensions of the cosmos by following and imitating cosmic harmonic law. Yet above all, he has a duty to imitate the creativity of the Architect-Musician. The theory of *mimesis* is an aesthetic counterpart to this epistemological relationship with the cosmos: the imitation of nature is also a way to comply with nature, to bring latent dimensions of nature to life in art.

The third section of this chapter (3.3) aims to substantiate the claim that in its musical anthropology and aesthetics Ficino's *Compendium* is greatly influenced by the Neoplatonist conception of the return of the soul to its transcendent divine origin as a kind of assimilation to divine life. Following this late antique Neoplatonist theory, Ficino conceives of divinization as the ultimate goal of his own philosophy. Thus, wisdom for him is not a purely cognitive

activity or state but also a practical virtue involving other parts of the human mind as well. I will investigate how Ficino uses music in contemplative ascents—that is, how music is used to make a transition from theoretical knowledge of the physical world to metaphysics, the highest level of theoretical knowledge and virtue. This will be done by explaining how on a higher level music is able to act as a bridge between these two realms, enabling the human soul to grasp the transcendent divine harmonic principles underlying the universe. I will, moreover, pursue and further develop Kristeller's (1943, 206–230) analysis of Ficino's theory of internal experience by investigating how music in Ficino's *Compendium* is able to assist the human soul in its return from the imperfect physical world to the transcendent harmonic world from which it originates. I will, moreover, analyse how Plato's myth of Er as well as Macrobius's *Commentary on the Dream of Scipio* function in this context as narrative structures for Ficino's view of the soul's spiritual journey through the spheres.

The fourth section of this chapter (3.4) deals with Ficino's view of *musica humana*, especially with his innovative ideas about the harmony of the human soul and the sense of hearing. After Ficino published his *De vita triplici* (*Three Books on Life*; 1489), which contained a long section on music's interface with the cosmic and human body and soul, he remained interested in the topic. The *Compendium* bears witness to his growing interest in the *Timaeus* chapters devoted to the human body and physiology, an interest indicative of the concerns of late fifteenth-century science.[10] The results of Ficino's study appear in the last chapters of the 1496 edition of his *Compendium*, as well as in the accompanying "Distinctiones", which have never before been studied in great detail. A detailed discussion of Ficino's theory of the sense of hearing will help us to assess how his *Compendium* is related to the music-therapeutic investigations of his *De vita*.

Finally, at 3.5, I will study how Ficino's view of the harmony of the human soul and the sense of hearing, as given in the *Compendium*, enables an innovative view of the doctrine of musical ethos—that is, of how music's power can be used to shape and condition the human body and soul. I will argue that in his *Compendium* Ficino projects his own ideas about the art of making music, and the aesthetic and religious experiences it involves, into the *Timaeus*. As in many late antique and medieval theories of *musica humana*, 'music' as an intellectual ideal plays a role in Ficino's thought in the moral habituation of a soul, before its access to the first stage of a philosophical

10 For the connection of cosmology, music, and medicine in Ficino's philosophy, see Voss 1992; Pennuto 2000; 2001, 99–126; and Prins 2009 and 2012.

education. Within this context, he envisages divinely ordered earthly music, first of all, in a preparatory, music-therapeutic way. Music is supposed to act on the passions, mastering them and ordering the human soul.

By examining Ficino's revival of the practice of singing Orphic hymns, I will demonstrate that instead of a revival of an actual ancient musical practice, Ficino is aiming at a metaphorical revival in the 'spirit of Orpheus, Pythagoras and Plato'. By revivifying vocal monodic musical practices, Ficino believes that music can again be imbued with the force of a necessary, unchanging harmonic ideal and once again play an important part in education and the acquisition of true knowledge.

On the basis of a reconstruction of Ficino's performance practice of an Orphic hymn, I will analyse Ficino's theory of music as the optimal tool for man to shape his innermost self. Plato's *Timaeus* envisaged a whole range of different and sometimes mutually exclusive relations between the philosopher and the musician. I will demonstrate, however, that Ficino in his *Compendium* uses the elusive doctrine of the harmony of the spheres in a strategic way to reconcile musical practice and philosophy. On the surface, in Ficino's opinion, they may seem to be polar opposites in Plato, but proper education, which he conceives of as a musical spiritual journey, will reveal the total identification of music and philosophy.

3.2 Man as a Harmonic Microcosm

Although in general the Timaean understanding of the cosmos was taken over by Christian Platonist thinkers such as Augustine, Boethius, and Dante, they excluded from their view 'heretical' ideas about the existence of a World-Soul and the participation of the human soul in this cosmic soul.[11] In fact, from an early period, Christians associated the 'χ' used in the *Timaeus* to describe the harmonic design according to which the Demiurge created the planetary circles with Christ instead of the World-Soul.[12] In their opinion, all things were created by the Word, and Christ initialled his handiwork with the instrument of salvation, the cross. Ficino, however, by using his subtle interpretative strategies, tries to restore the original Timaean concept of the World-Soul in his *Compendium*, in the belief that it has a greater explanatory power for a philosophy of nature than the Christian interpretation of his medieval predecessors.

11 See McMahon 2006, 34–44. For the place of Augustine in Ficino's *Theologia Platonica*, see Tarabocchia Canavero 1978; and Ficino 2001–2006, 6 (2006): 345–347.

12 *Tim.* 36b–c, in Plato 2000, 20–21.

In addition, it fits Ficino's interpretation of the godlike man, whose participation in the World-Soul enables him to become creative like his Creator, as I will explain in detail below.

3.2.1 *Man Made in the Image and Likeness of God*

According to Ficino's *Compendium*, man's unique place in the harmonic cosmos discloses itself in his intrinsic ability to shape his innermost self.[13] Because God made man "in his image and likeness", Ficino declares that man is able to act in conformity with God's harmonic master plan of Creation as the co-creator of his own nature.[14] This role as active creator of essential parts of his being sets man apart from all other creatures.[15] Furthermore, this creative power is the very reason why man has been appointed the master of all Creation. No longer a passive witness to God's Creation, like the animals below and the angels above him, man, created with free will, has been given the ability to influence and transform his world and, in so doing, to reshape himself into a more perfect and harmonious creature. For Ficino, then, man's destiny rests in his willingness to accept the God-given tasks of ruling over the world and of developing himself and his fellow human beings. On the level of the individual, this task can best be performed by setting out on an interior journey during which one has to strive with all one's powers for harmony and spiritual enlightenment, as will be discussed at 3.3.2.

In his *Compendium*, Ficino aligns the Timaean cosmogonic myth with the biblical Creation story to communicate to his readers his all-embracing vision of man's exceptional place in the cosmos:

> It is worthwhile to consider how much our Plato advises us to take pains to obtain self-knowledge with all our powers, and to remember that all things under the Moon have been made subordinate to us by God. Hence, we should never subject ourselves, contrary to our dignity, to things inferior to us. . . . And again, in the middle of the course of discussion the Father orders the gods to equip and adorn man, the master of all living

13 This chapter builds on, and further develops, ideas on Ficino's Neoplatonic theory of language discussed in Bono 1995, 26–47.

14 Genesis 1:26–27. For Ficino's place in the Renaissance reception of the biblical doctrine of man made in the image and likeness of God, see Trinkaus 1970, 929ff.; and Rochon 1989.

15 For Ficino's ideal of human autonomy and freedom, see Trinkaus 1986, 197–210; and 1994, 335–357; and Etienne 1998, 431–432.

> beings,[16] whom he desired to be made in his image and likeness[17] and to rule over everything.[18]

In his *Theologia Platonica*, Ficino had explained this idea in further detail, declaring that

> whatsoever the Earth is, man is its master. He is surely a god on Earth. Nor must one suppose man's rational soul to be any less divine because it is enclosed in a fragile body. Rather for that reason it is utterly divine, since even in the filth of this Earth (if earth indeed is vile), and contrary alike to the nature of its location and the burden of its body, it nonetheless accomplished divine tasks, such that in ruling over things inferior it never departs from higher things.[19]

The idea of being made in the image and likeness of God means several things for Ficino at the same time. First, to be created in God's image means that God and man have a close fellowship that is unlike the relationship of God with the rest of his Creation. Second, it means that man should aim to imitate and echo God in his personality and communication with fellow human beings. Human life as such is a pursuit to become a well-tempered echo of the music of God's Creation. Third, it signifies that man should be in community with others in order to support them in their quest for harmony and inner peace.

Ficino's particular vision of the exceptional place of man in the Creation owes a profound debt to the rediscovery of ancient sources in the fifteenth century, among which astrology and magic play an important role.[20] The fusion of Neoplatonic, Christian, Aristotelian, and other sources in Ficino's *Compendium* results in a relatively new Neoplatonic theory of music's power

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16 For Ficino's equation of the gods (i.e., the sons of the Demiurge, who at *Tim.* 40–41 were in charge of completing human beings after they were created by God) with the biblical angels, see Allen 1987 (1995) 399–439, esp. 416ff.; and Etienne 1998, 437.

17 Genesis 1:26–27.

18 *Consideratione dignum est, quantum nos admoneat Plato noster, dandam esse operam, ut nos ipsos pro viribus cognoscamus, meminerimusque omnia infra lunam fuisse nobis a deo subiecta, ne quando ipsi contra dignitatem nostram inferioribus nos vicissim subiiciamus. . . . Rursus in medio disputationis cursu diis a patre praecipitur exornare hominem, dominum animalium, quem ad imaginem et similitudinem suam esse velit, atque praeesse. CiT* XXXXV, 79[r].

19 *TP* XVI.vi., in Ficino 2001–2006, 5 (2005): 282–283.

20 See Garin 1976 (1983) 43–48, 61–80; Moore 1982; and Bullard 1990.

to shape and condition the human soul, which will be studied in further detail at 3.5.

History—like the cosmos and man—is envisaged as a work in progress developing according to harmonic law towards ever-increasing harmony and peace. Man as co-creator of his own nature is given the task of furthering and completing the salvation history of Christian theology. God is essentially seen as acting in history, and Christ is seen as the midpoint of a continuum from Creation, the Paradise before the Fall, to the hereafter, the Paradise beyond death. According to Ficino, man, like God, is given free will to act in history by re-establishing the paradisiacal state of Creation in his own body and soul, as well as in those of his fellow human beings. Musical and astrological knowledge of the constellations of planets and stars is interpreted by Ficino as a divine gift, which will guide man in his acts.

The philosophical roots of Ficino's conception of *musica humana* and *musica instrumentalis*, and the way in which they converge in his theory of man made in the image and likeness of God, emerge early in his career. His *De sono* (*On Sound*) (1455), a youthful work written in the medieval Aristotelian Scholastic tradition, already suggests that earthly music originates directly from God, and that for that reason it has a close connection with the nature of man and the cosmos.[21] Later on in his career, in his *Compendium* as well as in other works, Ficino draws his conception of *musica humana* and *musica instrumentalis* largely from Christian-Neoplatonic theories in which the ideas or forms of created substances mirror or echo the harmonic archetypes contained in the Mind of God.[22]

These Christian-Neoplatonic ideas become the core beliefs of Ficino's philosophy of music: if God instantiated the divine harmonic archetypes in corporeal substances through the creative act of His divine Word, then man, who is made in the image and likeness of God, can metaphorically associate earthly music with ideal music, that is, the archetypal harmonic language that God used for His Creation.

In his *Compendium*, Ficino projects the anthropomorphic image of a musician onto God the Demiurge, imagining the Creator as the archetypal Musician who sings the cosmos into being.[23] Man, created in God's image and likeness, must become a dynamic image of God by perfecting his own being—that is, by becoming a perfectly pulsating stringed instrument which can be played by

21 *De sono* is published in Kristeller 1944, 257–318. Its dating is discussed at 266.

22 See Kodera 2002; and Prins 2007. For mirroring as an expression of the cosmic power of *aemulatio*, see also 2.5.2.

23 For a discussion of this metaphor, see 2.5.1.

his Creator though the medium of Soul. The playing of the Soul on the world lyre is consistent with Ficino's concepts of both harmonic law and divine and human free will.

In his *Compendium* as in his *Theologia Platonica*, the idea of man as creator able to echo his divine origin informs Ficino's ideas about the immortality of the human soul.[24] Furthermore, a significant part of this particular idea derives its meaning from his *De vita*, where he places it in the context of his ideas on astrological-magical medicine and musical healing.[25] Yet whereas *De vita* largely discusses music and harmonics from the perspective of a scholar who wants to live a long, healthy, and happy life, the *Compendium* essentially provides further philosophical, psychological, and physiological grounds for these theories.[26] In its entirety the *Compendium* constitutes an important contribution to the way in which man must be understood both as co-creator and as inherent part of the created world. Ficino combines the idea of immortal man as a mirror image of God with a vision of man's power to use the hidden forces of nature through musical sounds and melodies. His philosophical, musical, theological, astrological, and magical concerns converge in one comprehensive theory of the close relationship between earthly music and the divine music of God's Creation.

As Kristeller has shown, along with many scholars after him, Ficino attributes to the harmonic structure of the Soul—including the human rational soul—a central place in his hierarchy of being:[27]

> [Plato says:] God placed Soul in the middle [of the cosmos] and thence extended it to the whole universe; at the same time he led something of it outside the [physical] world, so that while the Soul provided for the world, it might thereby be turned back towards God.[28]

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24 Etienne 1998, 431.

25 In chapters XXV, XXVII, and XXXX of the 1496 edition of his *Compendium in Timaeum*, Ficino refers to his *De vita*. He thus considered *De vita*, among other works, as part of the background to the last version of his *Timaeus* commentary, which may therefore be interpreted in the light of the astrological, magical, and medical music theory of his *De vita*.

26 See Ficino, *De vita* III, in Ficino 1989, 236–393. Chapters III.ii (Ficino 1989, 249–255) and III.xxi (Ficino 1989, 355–363) discuss Ficino's method of attracting beneficial influence through the imitation of the harmony of the spheres.

27 See Kristeller 1943, 438 (section "Soul").

28 *Deus animam in medio positam, protendit eam inde per totum; et interim aliquid eius eduxit extra mundum; quo videlicet dum provideret mundo, converteretur ad deum. CiT* XXVII, 68r.

Given the central place of Soul in Ficino's hierarchy of being, man by means of his immortal soul is able to transcend his own realm of being and connect with realms above and below him. Because God made man in his image and likeness, the human soul has the capacity to travel unhampered through all spheres of being. Ficino firmly believes that through the movement of his soul, man is able to obtain knowledge of all aspects of the physical, as well as the metaphysical, cosmos. The act of obtaining knowledge, moreover, is seen as a kind of transformative activity of the soul, by which man appropriates elements of the cosmos to his own cognitive faculties. As such Ficino conceives of the harmonically ordered cosmos as a divine Creation reproduced actively by the human intellect.[29]

Man's creation in God's image and likeness means for Ficino that, analogous to the way in which God created the macrocosm, man as co-creator of his own nature is able to fashion an ordered and therefore meaningful world, a microcosm, either in his soul or in his music.[30] In the same way that the macrocosm emanated first from God's desire to create something good and harmonically proportioned, man's world originates from the desire for knowledge as well as the desire to create and to perfect his own being, a process for which music can be used as a tool.[31]

Ficino's conception of the interaction between the human soul and music is of crucial importance for his interpretation of the *Timaeus*. The order that the human soul imposes on the world is not only an intellectual order but also an intentional one. Every kind of knowledge obtained and created by the human soul involves not only the intellect but also the deeper levels of will and feeling, which are all used simultaneously in the practice of making music. The stress on the creative aspects of man's likeness to God characterizes Ficino's Renaissance portrayal of man and his music.

Ficino uses the *Timaeus* as an important point of departure for his explanation of what it means precisely to be made in the image and likeness of God. As we have seen in chapter 2, at *Tim.* 35b–36b Plato described the World-Soul

29 Ficino's conception of knowledge does not focus on the individual facts that are obtained analytically but on their correspondence to the whole. Given cosmic principle 3 'The whole precedes the parts', discussed at 2.3.2, the rationale of the parts of a body of knowledge is derived from the whole. Hence, the network of analogies that exist in the cosmos is also the foundation of knowledge. Because the human being reflects the cosmos, and at the same time is a corporeal firmament that is similar to the heavenly firmament with its planets and stars, he is able to discover that he is subjected to their events, changes, and influences. See Cassirer 1963, 125.

30 Cassirer 1963, 112–114.

31 Ficino's theory of human creativity will be analysed in further detail below at 3.2.2.

as a composite of numerical ratios. Furthermore, according to *Tim.* 41a–44d, the lesser souls, including human souls, were created in a similar manner. On these premises, Ficino claims that the individual soul of a human being is concordant not only within itself but also by exemplifying the harmonic structure of the World-Soul through which it participates in cosmic harmony.

Yet there is a major difference between the manifestation of the harmonious structure of the World-Soul in the cosmos and in a human being. When the human soul makes its way from the heavens to enter a human body, according to *Tim.* 43d the harmonic orbits of the soul are stirred and violently shaken. In this process, moreover, cosmic movements twisted "the three intervals of the double and the three of the triple, as well as the middle terms of the ratios of 3:2, 4:3, and 9:8 that connect them". These agitations did not undo them, however, "because they cannot be completely undone except by the One who has bound them together".[32] From a Christian perspective, Ficino interprets the perfect ratios of the human soul as being the image and likeness of God, which has to be restored during life on Earth.

To summarize, Ficino argues, with the *prisci theologi*, that because God created the macro- as well as the microcosm according to number, measure, and weight, all living creatures are made captive by harmony.[33] By reading Genesis 1:26–27 (man is made in the image and likeness of God) through the lens of Wisdom 11:20 (God has ordered everything according to number, weight, and measure), Ficino has devised an anthropology which is in agreement with the Timaean one. Consequently, the *Timaeus* can be beneficially used to study man as a harmonious microcosm. In line with the teleology of God's Creation, man's soul is seen as a string, which during life on Earth must be more finely tuned for his participation in the archetypal melodies of the Demiurge's cosmic symphony.[34] Well-temperedness is represented by the figure of the circle. Let us now consider in further detail how, in Ficino's opinion, developing one's creativity is the pre-eminent way of becoming a well-tempered being.

3.2.2 *Musical Creativity*

In his *Theologia Platonica* Ficino had sung the praises of man's infinite creativity with the following words: "Throughout the whole globe how marvellous is [man's] culture of the Earth".[35] Because the passages on creativity and musicality

32 *Tim.* 43d, in Plato 2000, 31.

33 Wisdom 11:20. For Ficino's use of this quotation in the context of his cosmology, see 2.5.1.

34 Kristeller 1985, 133–152.

35 *TP* XIII.iii.3, in Ficino 2001–2006, 4 (2004): 172–173.

in this work function as a backdrop for the theory of *musica humana* in Ficino's *Compendium*, I will discuss them briefly here.[36]

Cassirer (1963, 66) asserts that "according to Ficino, the whole point of religious and philosophical knowledge is nothing other than the eradication from the world of everything that seems deformed; and the recognition that even things that seem formless participate in form". In addition, he argues that such knowledge for Ficino cannot content itself with the mere concept but must be transformed into action and proves itself through action. Here begins the contribution of the artist, because he can fulfil the requirement that speculation can only state. There is no need to repeat the secondary literature on Ficino's contribution to the famous Renaissance theory of man's creativity in this place. But it is important to discuss a few issues in Ficino's *Compendium* concerning the role of the musician in order to clarify his ideas of how man, with earthly music, can imitate God as the composer of the music of the spheres.

The discussion of man in Ficino's *Compendium*, as Etienne (1998, 436) shows, circles the question of how man, who is made in the image and likeness of God, can himself become a source of harmonic order and beauty and in so doing further cosmic harmony in his fellow human beings. According to Ficino, human creativity and art originate from an inner mental capacity to see and understand cosmic harmony, order, and beauty. Understanding, in this context, is seeing and hearing with one's inner ears and eyes, as will be discussed in further detail below at 3.4.2. A human being, as Allen (1987, 436) notes, should create *ex ideis*, that is, from ideas rather than from matter. He is unable to imitate God in creating *ex nihilo* (out of nothing), but he should give harmonic form, beauty, and perfection to matter presented to him, which has not yet reached perfection. Or in the words of a chapter of Ficino's *Theologia Platonica* devoted to purposeful activity in the arts and in governance: "In sum, man imitates all the works of lower nature, correcting and emending them".[37] Ficino believes that the ability both to be a co-creator of his own nature and to make art distinguishes man from all other creatures. Whereas the "brutes are enclosed within the narrow limits of nature", man is given the power to transcend these limits by making art, which is "the source of an untold variety of pleasures that delight the body's five senses, pleasures that our own wit and inventiveness devise for ourselves".[38]

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36 For Ficino's ideas about human freedom and creativity, see, e.g., Koenigsberger 1979, 226–237; and Bloch and Burkhard 2003.

37 *TP* XIII.iii.2, in Ficino 2001–2006, 4 (2004): 170–171.

38 *TP* XIII.iii.2, in Ficino 2001–2006, vol. 4 (2004): 170–171.

In order to create, a human being needs simply to observe nature around him as a book that tells the story of how God has created the world. In so doing, "we observe that in the individual species, nature makes many things not simply for the sake of preserving the species but for ornament: we see this clearly in their colours, shapes, and features, and in an ordering that is superlatively well arranged".[39] It is relatively easy to compare God's creative method as a supreme Architect-Musician with that of a visual or plastic artist, who uses physical matter for His Creation. Because it might be a little more difficult to imagine how a musician can imitate God's "ordering that is superlatively well arranged" in musical compositions and performances, this will be explained now.

In Ficino's philosophy of music, the composer and musician are presented as gods on Earth.[40] According to the *Compendium*, composers and musicians should imitate Apollo, who sang Creation into being.[41] The philosopher-musician is the prototype of Ficino's idealized conception of man, for which he found inspiration in many sources of the tradition of the *prisca theologia*.[42] Among these sources, the *Timaeus*, the Bible, the *Corpus Hermeticum*,[43] and the Orphic hymns were very important for the development of his theory of creativity.[44] In principle, creating is something entirely immaterial because it happens in the Mind of the Creator, completely unhampered by matter, just as in Ficino's Christian interpretation of the Timaean cosmogonic myth.[45] The Florentine argues that unlike other creators, only musicians are not intermingled with and affected by the matter of their creations, and therefore, they have complete control over their compositions.[46] Where visual arts are bound to imitate the physical world, music is capable of expressing metaphysical laws directly. Precisely for this reason, music is the artistic medium par excellence in which God's creativity can be echoed.

The *Compendium*, in my opinion, can best be read as an elaboration of the following observation in Ficino's *Theologia Platonica* regarding the *Timaeus*: "some form very like God must have been imprinted in nature if the divine

39 *TP* XV.xiii.5, in Ficino 2001–2006, vol. 5 (2005): 152–155.

40 See Chastel 1996, 65–72.

41 *CiT*. XXVIIII, 69^{v}. This passage is also discussed at II.5.1.

42 See Garin 1989, 218–234, esp. 222ff.

43 See Yates 1964, 46off.; Allen 1988; and Pennuto 2003.

44 See Klutstein 1987, 21–45.

45 For the relationship between form and matter, see *TP* I.iii.25, in Ficino 2001–2006, 1 (2001) 52–53.

46 *TP* II.xii.3, in Ficino 2001–2006, 1 (2001) 194–195.

Artificer is going to rule in any way over matter, as Plato taught in the *Timaeus*, where he maintains that this form is the mind which is in the body but which has been plucked from the mind outside the body, as though it were a reflection of that mind blazing in the mirror of a higher matter".[47] A particular kind of earthly music in Ficino's *Compendium* is interpreted as an echo of the divine world symphony, because it echoes the mind of a musician in precisely the same way as the Creation reflects the divine Mind.

Ficino's *Compendium* argues from *Tim.* 35b–36b that God created the cosmos, like a divine Architect-Musician, on the basis of musical proportions. On this premise, Ficino argues that the world is far from chaotic but is, rather, a work of art, whose harmonic structure, unity, and continuity a human being can understand, because the human soul is made in the image and likeness of the World-Soul. Imitating the *Timaeus*, which—as argued at 2.2.2—can be considered a hymn to the Creator, man can sing other hymns to his Creator, and in doing so, he will, as co-creator, contribute to the embellishment of the world.

With this musical aesthetics, it may not come as a surprise that Ficino compares God to Apollo and takes Orpheus as a role model in his *Compendium*, epitomizing the ideal of the philosopher-musician. His own musical talent was noted admiringly by his contemporaries, as Walker (1958, 19) observes, particular his playing of the *lira da braccio*. Haar (1960, 344), among many other scholars, reports that Ficino regarded 'Orphic' singing as the highest use of his lute (or perhaps *lira da braccio*), an activity so important that he listed it as one of the principal achievements of his century, one in which he and his circle had taken the lead.[48] For fifteenth-century listeners, music improvised by a brilliant musician was deemed the highest art form, for it revealed how the eternal hand of God guaranteed eternal order in an ever-changing and transient cosmos. In this respect, both the divine music of Creation and earthly improvised music can best be seen as variations on the same theme.

If we ask what sort of music Ficino played on the Orphic lyre, it seems most likely that his improvisations, even when inspired by the Orphic hymns, bore some relation to the musical styles of his own environment. Yet because Ficino's Orphic musical practice, like its immediate musical context, was apparently entirely improvised, no direct evidence of it survives. To conclude, for Ficino, composing music did not consist in making fixed compositions but

47 *TP* X.v.8, in Ficino 2001–2006, vol. 3 (2003): 160–161, where *Tim.* 29a, 34b–35b, and 41cd are discussed.

48 *Epist.* XI, in Ficino 1576 (1962) 944; translated in Allen 1998, 11–13.

in imitating the dynamic creative act through ever-changing musical improvisations. Since spiritual self-development is a key to making these musical improvisations ever more efficacious and meaningful, let's have a closer look at his view of contemplative ascents now.

3.3 Contemplative Ascents

As Hankins (1990, 297ff.) shows, a fundamental issue confronting Ficino as an interpreter of the *Timaeus* is the esoteric character of Plato's account. Ficino believes that the *Timaeus* deals with the highest secrets of theology, philosophy, cosmology, and psychology; hence, it is of the utmost importance for him to know how one should interpret its poetic and arcane content. As we have seen in chapter 2, Plato had offered an elaborate cosmogonic myth at *Tim.* 35a–36d in which a divine Craftsman, guided by his ideas of what is most beautiful and best, constructed out of an unordered chaos a unique harmonic world conceived of as an eternal living organism. Ficino answers affirmatively the question of whether we are to understand this story literally, as a step-by-step creative process in which, at the beginning of time, the craftsman God actually created the world. In the case of passages which are much more difficult to reconcile with Christian dogma, however, the Florentine argues that the *Timaeus* might also be interpreted as an extended metaphor, artfully depicting as a deliberate creative process the fundamental harmonic principles that in Plato's view underlie the physical cosmos and its inhabitants.

In this section I will study how the age-old controversy between a 'literal' and a 'metaphorical' reading of the *Timaeus*, summarized by Zeyl (2000, xx–xxv), shows up in Ficino's interpretation of man's use of harmonics and music in his quest for knowledge and wisdom.[49] Proclus reported that Crantor supported the metaphorical view, which appears to have predominated among subsequent generations of Platonists down to the time of Plotinus, though the literal view was also maintained by eminent Platonists like Plutarch. Ficino wavers between the opposing positions of these Platonists, all of whom he consulted for his interpretation of the dialogue.[50]

In general, Ficino defends a literal reading of Plato's texts, in the conviction that in this choice he follows Proclus in his *Timaeus* commentary. In defence of

49 For Plato's conception of the relationship between knowledge and reality, see, e.g., Crombie 1962–1963/II.

50 For the influence of Plotinus, Proclus, and other Neoplatonic philosophers on Ficino's *Compendium*, see Etienne 1998, 125–133.

a literal interpretation, Ficino reasons away contradictions between different Platonic dialogues. At *Tim.* 35b–36b and *Tim.* 41d–42d, for example, Plato represents the World-Soul and individual (human) souls as having been created.[51] Elsewhere (e.g., *Phaedrus* 245c–e), he puts the contrary view, that the Soul is uncreated, in the mouths of his interlocutors. For Ficino, this is an intolerable contradiction, which may be resolved by arguing that the *Timaeus* is of later date than the *Phaedrus* and hence reflects a more mature point of view (i.e., the view that the Soul is created). He, moreover, argues that Plato in later dialogues, such as the *Timaeus*, came closer to the absolute and literal truth of the Bible's teaching that God creates every individual human being in his image and likeness and with an immortal soul, the very belief that, from a Christian perspective, gives meaning and purpose to human life. This is a clear example of the interpretative strategy of Christianizing Plato, discussed by Allen (1987) and Hankins (1990, 355).

It is even more difficult to determine whether the theory of contemplative ascent presented in Ficino's *Compendium*, which is built on Timaean concepts such as the transmigration of the soul and reincarnation (*Tim.* 42b–d, 90e), must be classified as an example of a literal or a metaphorical reading of the *Timaeus*.[52] In the discussion of this theme below, I will argue that this theory is an example of, perhaps deliberate, interpretative ambiguity, in which both readings are mixed in such a complex way that they have become indistinguishable.

3.3.1 *The Transmigration of the Human Soul: a True and Likely Story*

The transmigration of the human soul is an important motive in the Timaean cosmogonic myth, Plato's myth of Er, and Cicero's *Dream of Scipio*, three founding texts of the tradition of the harmony of the spheres.[53] For his interpretation of this theme, Ficino takes *Tim.* 41d–42d as his point of departure, where Plato developed a theory in which the original home of a human soul is in one of the fixed stars. As a result of the movement of the spheres, at the birth of a human being the soul falls through the planetary spheres to Earth, where it is united with a body. How the soul must then try to liberate itself from the body and ascend to the fixed star from which it fell is imaginatively worked out in Ficino's *Compendium*. The soul, in the course of its fall through the planetary spheres, is thought to acquire the negative qualities of the planets: sloth from

51 *TP* IV.i.1–31 and IV.ii.1–11, in Ficino 2001–2006, 1 (2001): 248–313.

52 For the active and the contemplative life in Renaissance humanism, see Kristeller 1996.

53 For the edition of Ficino's letter containing a variation on *The Dream of Scipio*, see Ficino 1576 (1962), 1: 821ff.; for an English translation, see Ficino 1975–2009, 5 (1994): 23–30.

Saturn, combativeness from Mars, lust for power from Jupiter, voluptuousness from Venus, greed from Mercury. Yet if a person lives a good life during which he is able to discard these negative astral qualities, after death his purified soul will return to its dwelling place in the heavens.

Whereas Ficino clearly interprets the Timaean cosmogonic narrative literally, at first sight his account of the transmigration of the human soul (*Tim.* 42b–d, 90e) inclines more towards a metaphorical reading.[54] This becomes manifest, for example, in his attack on reincarnation, where Plato expressed the peculiar, be it only 'probable', view that if men behaved cowardly and spent their lives in wrongdoing, their souls might be embodied at second birth in women or animals. Whenever Ficino has a difficulty with the literal reading of such a passage in the *Timaeus*, he stresses that Plato had presented his story with certain qualifications, describing it as merely a 'likely story' (*Tim.* 29d). In such cases, Ficino maintains, Plato himself warned readers that they should not expect accounts that are "completely and perfectly consistent and accurate" (*Tim.* 29c). Ficino takes these demurrals by Plato as an indication that, at least as regards reincarnation, the *Timaeus* must be taken as an extended metaphor and not understood literally:

> Because Plato speaks at this place [in the dialogue] in the role of a Pythagorean, he opportunely invents a story similar to the myths of the Pythagoreans. And in order to prevent us from taking it as historically true, [at *Tim.* 42b–d] he introduces the transformation [i.e., reincarnation or transmigration] of souls as the poets do. Timaeus Locrus in his book *On Nature* admits that these stories have a mythical character. Accept these things in this way and finish the *Timaeus* to this purpose, for it teaches us above all to praise God, who has created all good things [in the cosmos] only from the benevolence of His Providence.[55]

According to Ficino, certain elements in the *Timaeus* are clearly mythical and produce absurdities if read literally. He clearly argues that if a literal reading produces contradictions with the Bible or absurdities that a thinker of Plato's

54 See Tomlinson 1993, 145–188; and Hankins 2005a.

55 *Ipse, enim, hic sub persona Pythagorica loquens, fabulam opportune confingit, Pythagoricarum similem fabularum, atque ne haec quasi sub historica veritate, forsan admitteremus, non aliter quam poetae soleant animalium transformationes adducit. Atqui Timaeus Locrus in libro de mundo fabulosa haec esse fatetur. Haec igitur sic accipito, Timaeique librum eo fine concludito, qui doceat nos, deum ante omnia colere, qui bona omnia sola benignitate providentiae procreavit. CiT* XXXXVII, 80^{v}.

stature would never have tolerated, then one should interpret the *Timaeus* metaphorically. Only then can the dialogue be used beneficially to formulate a theory of the transmigration of the soul that is acceptable to fifteenth-century man.

Evidently, Ficino is inspired by the idea of the transmigration of the soul, which fits his view of man as a co-creator of his harmonic nature quite well. Yet given that reincarnation or transmigration of the soul as described at *Tim.* 42b–d is entirely incompatible with Christian faith, especially with the view that all human beings are made in the image and likeness of God, Ficino gives the passage careful attention:

> Anyone will recognize that what Plato adds [at *Tim.* 42b–d] about the transmigration [of a human soul] into animals is mythical and allegorical in character, if he has noticed what feeble reasons have been adduced for this particular kind of transformation. Otherwise, [Plato] is a man of great consequence. Furthermore, [the reader] will remember that Timaeus himself, speaking in his book *On the Nature of the World*, manifestly denies transmigrations of this sort. Perhaps, then, it is a Platonic opinion that rational souls, even if they do not pass into bodies that are other than human, still seem to migrate into as many kinds of beasts as there are human affections, and habits, as if they were beasts. So extensive, so varied is the human race that in the guise of a human being, in a certain way angels, demons, humans, birds, fishes, wild animals, tame animals, and snakes can be seen.[56] Unless you interpret this allegorically or in some similar way, you will be forced to demonstrate that all these different cases concern one type of soul, that is, the human soul, which manifests itself differently every time. But from the beginning Plato and Timaeus enumerate many kinds of souls, and many classes, and assert that rational souls descend directly from their Creator in Heaven, but that the irrational souls are generated by heavenly powers.[57]

56 This phrase is a variation on the famous Renaissance theme of the dignity of man. As 3.2 has shown, Ficino endorsed the famous belief expressed in Pico's *Oratio de hominis dignitate* (*Oration on the Dignity of Man*, 1486) that man as co-creator of his own nature had been given a free choice to become similar either to a beast or to a harmonious angel.

57 *Quod vero de transmigratione in bestias addit, fabulosum et allegoricum esse, cognoscet quisquis animadverterit, quam leves transformationis eiusmodi rationes adducat. Alioquin vir gravissimus. Praeterea Timaeum ipsum hic loquentem meminerit in libro suo de natura mundi transmigrationes eiusmodi manifeste negare. Forte igitur Platonica sententia est, rationales animas, etsi non in alia corpora transeant quam humana, videri tamen in tot bestiarum species emigrare, quot sunt hominum affectus, et habitus quasi bruti. Tam, enim, amplum est, tam varium genus humanum, ut sub humana persona, angeli, daemones,*

In line with *Tim.* 42b, Ficino's interpretation stresses that it is the task of a human being on Earth to master his emotions and, by so doing, to lead a just life. He agrees with Plato that "if a person lived a good life throughout the due course of his time, he would at last return to his dwelling place in his companion star, to live a life of happiness that agreed with his character".[58] Next, he repudiates the idea that punishments by literal incarnation in the body of a woman or, even worse, an animal are meted out to people driven by their emotions. Instead, he interprets this type of transformation of the soul metaphorically as if morally weak people become more effeminate or bestial.

In his prophetic role, Ficino wants to show how, according to *Tim.* 42d, man can bring his life on Earth "into conformity with the revolution of the Same and uniform within him" and subdue "that turbulent, irrational mass by means of reason". He agrees with Plato that "this would return [man] to his original condition of excellence".[59] Ultimately, then, man as co-creator of his own nature can choose to transform his own being into something harmonious and angelic or into something disharmonious and bestial. As such, the notion of the transmigration of the human soul is a beautiful metaphor by which this choice can be described. The fusion of the metaphorical interpretation of the Platonic idea of the transmigration of the soul with the Platonic theory that music has the power to shape and condition the human soul is one of the most innovative aspects of the music philosophy of Ficino's *Compendium* and will therefore be studied in detail in the next section.

3.3.2 *The Soul's Journey Through the Heavenly Spheres*

The (Neo)Platonic-Christian motif of an ascent through the spheres, which brings about an interior journey during which a human being gains increasing insight into the harmonic structure of the cosmos and his soul, functions as a flexible and open concept in Ficino's *Compendium*.[60] The intelligible harmonic pattern at *Tim.* 35b–36b that underlies the structure of the World-Soul, the human soul, and music, seen through the lens of his interpretation of the

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viri, aves, pisces, ferae, cicures, serpentes quodammodo esse videri possint. Nisi vero haec allegorice ita vel similiter exposueris, cogeris asserere unicam hic animae speciem, et hanc humanam, sed alias aliter se habentem. At Plato Timaeusque multas ab initio hic species animarum, immo et genera numerant, affirmantque rationales quidem ab ipso caeli fabro descendere, irrationales autem a caelestibus generari. CiT ("Distinctiones") CIII, 93r.

58 *Tim.* 42b, in Plato 2000, 29.

59 *Tim.* 42d, in Plato 2000, 30.

60 Ficino also discusses this theme in *TP* XII.vi.1–11. See Ficino 2001–2006, 4 (2004): 77–91. For theological aspects of Ficino's theory of redemption, see Lauster 1998.

transmigration of the soul, constitutes the very basis of his conception of the human soul's journey through the planetary spheres.[61]

In the Pythagorean tradition of the harmony of the spheres, Plato's myth of Er and Cicero's *Dream of Scipio* are the most important stories of spiritual journeys. In the Neoplatonic tradition based on these narratives, the contemplation of numbers provides a means of rising from the temporal world to participation in the divine, the ultimate motive for study in Pythagoras's and Plato's school. A philosophy of music derived from the Timaean cosmology would expect a musical composition to reveal the harmony of numbers, providing the listener with a suitable object for his contemplation as he seeks to rise above the illusory world of physics in search of the real world of metaphysics.

Ficino imaginatively elaborates this traditionally Platonic concept by arguing that the ascent of a Christian human soul to God is equivalent to the transmigration of the human soul as discussed at *Tim.* 41d–42d. Ultimately, they converge in one comprehensive view of man's quest for his original home, knowledge, well-temperedness, and happiness.[62] As such, the epistemological and music-philosophical unfolding of the interior journey of the human soul in search of knowledge and inner harmony is far from a neutral framework.

Ficino's theory of the soul's journey through the heavenly spheres is based on ideas originating both from ancient Neoplatonic philosophy and from medieval Christian Platonism. During the Middle Ages the Timaean cosmogonic myth was interpreted in a Christian way. In this particular Christian interpretation of the *Timaeus*, the chiastic structure of the cosmos—that is, the 'X': the numerical structure underlying the physical cosmos and its planetary orbs—described at *Tim.* 36b–d came to function both as a circle and as a

61 For Plato's myth of Er and Macrobius's *Commentary on the Dream of Scipio*, see 2.5.3. While *Tim.* 35b–36b deals with the numerical proportions in the fashioning of the cosmos, the harmonious sound of the planetary movements is dealt with in the myth of Er in *Republic* 617b–c. The myth of Er was an important source of inspiration for Cicero's *Dream of Scipio*; during the Middle Ages Macrobius's *Commentary on the Dream of Scipio* 2.1–4 ensured Cicero's continuing importance as a source for the doctrine of the music of the spheres and accompanying ideas about a meditative ascent through the heavenly spheres. Although the story of Er records a near-death experience, whereas the journey of Scipio's 'disembodied soul' takes place in a dream, both are examples of a shared belief in the existence of a harmonic world beyond the senses.

62 Ficino stood in a long tradition of accounts of spiritual journeys or meditative ascents. For Ficino's concept of the ascent of the human soul for which the *Phaedrus* is the central text, see *TP* XII.i–vii, in Ficino 2001–2006, 4 (2004): 8–109. For a discussion of the Christian contemplative ascent in the work of Augustine and Dante from the perspective of the intelligence of emotions, see Nussbaum 2001 (c. 2003), 527–590.

cross in medieval Christian philosophies of life.[63] As a circle, the X symbolized procession and return, Creation and salvation, and the circular movements of the heavenly spheres. These, in turn, were thought to evoke the eternal circle of divinity, for the circle is the Timaean image of perfection, eternity, stability, and wholeness. As a cross, the cosmic X symbolized the point where the motion of Sameness intersects the motion of Difference in the World-Soul, as well as in Christ. In Ficino's account of a contemplative ascent, the X symbolizes the return to the One, which is fused with the imitation of Christ's return to his Father in Heaven.[64] Consequently, the belief that man is made in God's image and likeness, functions primarily as an incentive for human beings on Earth to imitate Christ, the most perfect man, in such a way that their immortal souls can return after the end of their lives to God in Heaven.

In Ficino's musical account of a contemplative ascent through different realms of being, which coincide with the heavenly spheres, everything that rises must converge, for its goal is the reunion of man with God his Creator. Within Ficino's hierarchy of being, man is able to use his soul to move upward and downward during his spiritual journey to logical and ontological principles of being that are higher and prior, or lower and later. As I have explained in chapter 2, higher spheres of being in Ficino's philosophy are based on, and therefore govern, lower ones. During the interior journey through different spheres, the human soul is able to ascend to levels of being even more essential and more universal.

In sharp contrast with the majority of modern theories of knowledge, Ficino's epistemology regards these higher categories of being as more real because they are more comprehensive. He understands the ascent through the spheres as an interior journey into increasingly greater reality, overcoming the multiplicity of the physical world as perceived by the senses and resulting in the ultimate metaphysical reality of the music of the spheres, which is characterized by harmony and unity and can be grasped by humans only with the mind.

In order to find its way back home during an incarnation in a human body on Earth, the human soul is equipped with various cognitive skills. Dialectics—thinking from two opposite poles—in Ficino's theory of knowledge is an innate habit of the human mind and is useful in a first, preparatory stage of

63 See McMahon 2006, 1–63.

64 Even though Ficino was acquainted with scholars such as Augustine, Boethius, and Dante, this Christian interpretation of the 'X' (chiastic cosmic order) is not found in Ficino's *Compendium*. However, traces of this tradition are found in his Christianizing interpretation of concepts such as the true home—that is, the hereafter or the 'fatherland' of the human soul.

the process of obtaining knowledge. Ficino, however, is mainly interested in a kind of knowledge that transcends dialectics and involves the whole person in the act of knowing.[65]

During the fall through the celestial spheres before being united to a corporeal body, the human soul obtains all the cognitive powers—will, intellect, reason, and imagination—in order to overcome the multiplicity of daily life and to retrace its divine simple origin.[66] The multiplicity of cognitive powers is not only an imperfection caused by man's contact with the physical cosmos but also an inherent capacity given man by his Creator to enable man to perceive and know every sphere of the hierarchy of being. By using the full range of man's cognitive powers, the soul is able to transform the multiplicity of perceiving and thinking into a synthetic act of knowing, in which the opposites caused by the act of practical reasoning are harmonized. In order to restore its inner unity, the human soul should tune the different operative cognitive powers into a simple harmony.

Mixing ideas from the original *Timaeus* and the commentary tradition, Ficino elaborates a Neoplatonic theory—based on *Tim.* 41d–42d—of an original fall of the human soul from the highest sphere in the cosmos, through the celestial spheres with their angelic, demonic, starry, and planetary minds, to the lower levels of the cosmos, which include the earthly sphere.[67]

In Letter 13—Ficino's variation on the *Dream of Scipio*—for example, the Florentine clearly merges the Platonic vision of the hereafter of the soul at *Tim.* 42b ("the dwelling place in his companion star") with the Christian conception of "wonderful bliss in our true home" (i.e., in the Empyrean,[68] or Heaven). In this same letter, furthermore, he also formulates a new argument for the inaudibility of the heavenly harmony associated with the perfect world beyond the senses. He argues that in this heavenly paradise, angels are singing "with such great sweetness" that if one could hear it on Earth, then "the whole of life on Earth would afterwards seem not only most bitter, but the very source of bitterness".[69] Thus, it is a sign of God's charity that we are made deaf to

65 This aspect of Ficino's philosophy of music is emphasized in Voss 2000, 2002. As Tomlinson (1993, 14–15) observes, there is a fine line between sympathizing with Ficino's philosophy and adopting his habits of mind in modern research, because the latter often gives way to a modern musical mysticism, in which a scholar risks placing himself in the tradition of a perennial philosophy.

66 See Kristeller 1943, 206–230.

67 See Kristeller 1943, 371–375.

68 For Ficino's conception of the Empyrean, see Allen 1994, 89–90.

69 For the edition of this letter, see Ficino 1576 (1962), 1: 821; for the translation, see Ficino 1975–2009, 5 (1994): 30.

the perfect music of His Creation during our lives on Earth, but the promise of experiencing it in Heaven is interpreted as an incentive to live a good and harmonious life. In its true home, before incarnation in a human body, the soul was characterized by ontological unity. As Kristeller (1943, 316) demonstrates, a very effective means of retrieving this true home is through listening to or making sacred music.

In this context Ficino interprets the Timaean cosmogonic myth and the myth of Er through the view of the early Church Fathers, who maintained that God committed to angels the care of men and all things under the heavens.[70] Like the sons of God at *Tim.* 41a–d, the angels are the first created beings and exercise the Providence of God over Creation; they also guard the faithful and act as intermediaries, presenting the prayers and songs of men to God, interceding for them, and communicating God's will to them.[71] In addition, the use of perfect Pythagorean consonances in sacred music will remind the human soul of its divine origin. Ficino declares:

> Therefore, only right adoration restores the souls to their blessed home [i.e., the celestial paradise governed by perfect harmony]. Only sanctity is full of virtue; only the good man, as Plato writes in his *Laws*, is able to pray in an appropriate and happy manner to God. Only a life in the company of those above will make human souls blessed.[72]

The definitive liberation from the imperfections of human life can be found only in a contemplative life full of sacred songs and prayers, which ultimately lead to knowledge of and union with God. True happiness is a state in which the soul is liberated from its earthly prison and is able to experience its true home: its divine origin. The deeper implication of this theory is that archetypal harmony as a kind of intelligible essence is, quite literally, a remembered world which the human soul can recall by listening to or making music. The upward path a human soul has to travel during an incarnation in a human body is, in

70 Evidence that Ficino was acquainted with Dante's way of linking Dionysius's orders of angelic beings to the heavenly spheres can be found in his *Praedicationes* (*Predications*), XXIV, which reflects ideas expressed in *La divina commedia* (*The Divine Comedy*), *Paradiso* I and XXVIII. See Ficino 1576 (1962), vol. I, 482.

71 As discussed at 2.2.2, Ficino follows here the structure of Proclus's *In Tim.*

72 *Sola igitur adoratio recta animas beatae reddit patriae. Sola sanctimonia est plena virtus, solus vir bonus, ut Plato scribit in Legibus, deum decenter feliciterque precatur. Sola cum superis consuetudo beatos facit. CiT* VI, 60^{v}.

the strictest sense of the term, a return to a musical paradise from which it has fallen.

Even though Ficino argues in his *Compendium* that the Timaean myth of Creation is fully in line with the myth of Er, it clearly is not the scholarly context in which to deal with the motif of an experience of the music of the spheres.[73] Given that it is an important theme, the view of harmonics and music which the commentary displays will be reconstructed here on the basis of one of Ficino's letters. In imitation of Plato's myth of Er and Cicero's *Dream of Scipio*, Ficino reports in a letter of 28 February 1479 to King Ferdinand that King Alfonso (King Ferdinand's grandfather) recently uttered from Heaven a prophecy in the language of angels. And he adds, "Marsilio Ficino, caught up by some spirit, was there. He heard and remembered that prophecy uttered by King Alfonso in the language of angels".[74] In this letter, Ficino may have used the theme of an ascent through the spheres purely as a rhetorical device. Yet if we place it in the wider context of the philosophy of his *Compendium*, we can also argue that he genuinely believes in the possibility of transmigration of the human soul as well as its inverse, soul possession.[75] Given that Ficino's definitions of the physical and metaphysical differ radically from ours, and given that he used his interpretative strategies to avoid conflict with official church doctrine, it is almost impossible to determine whether Ficino thought of spiritual journeys as being literal or metaphorical.

The meaning of Ficino's variation on the theme of the soul's journey through the planetary spheres derives not only from what is written but also from what is implied, such as references to religious, musical, magical, and astrological practices. In order to understand how Ficino imagines the process of bringing the soul "into conformity with the revolution of the Same and Uniform within her", we have to keep in mind that Ficino describes the ascent during which this can take place from an evolving viewpoint.[76] The information he supplies about a spiritual ascent in Letter 13 as well as in his *Compendium* is told from the esoteric moving viewpoint of someone who himself has undertaken a successful spiritual journey.

Ficino clearly intends to initiate his readers into the mysteries that were revealed to him during his own ascent through the spheres. In order to succeed in this ambition he has to translate what he understood "with the eyes and ears of the mind alone" into something that one can "receive with the ears and eyes

73 See 2.5.3.

74 Ficino 1576 (1962) vol. 1 816; 1975–2009, 5 (1994): 23.

75 See Allen 1984b, 86–112; and Tomlinson 1993, 145–188.

76 *Tim.* 42d, in Plato 2000, 30.

of the body as well".[77] The vision of cosmic harmony appeared in a dream, in a moment of ecstasy or frenzy (*furor*), during which Ficino's soul departed from his body and flew back to his celestial homeland.[78] In his account he follows *Tim.* 71d, where Plato states that when the lower part of the irrational soul is in a state of enjoyment, it can pass its nights peacefully, and in sleep it can exercise the power of divination.

During the soul's ascent through the spheres, man must overcome the finiteness of his own reason through a dialectical interaction between his intellect and his will. In doing so, he will be granted a glimpse of the invisible world, of which only a distant echo can be received. Travelling through the spheres of the cosmos is the best means of becoming aware of the harmonic design by which God created the world and which is expressed most perfectly in the planetary circles.

The spiritual ascent begins with the inward turn of a Christian-Platonist conversion: the human soul starts to contemplate itself, away from external things, and is led to those above. But higher also means deeper, more fundamental: higher principles of being prove to be deeper principles of human existence. When a Christian Platonist ascends through the heavenly spheres, he journeys into the depths of his own being and of all being. In the biblical sense, during this stage of his ascent man is no longer "seeingly blind and hearingly deaf", because he has learnt to use the 'deeper' senses of inner hearing and sight which enable the human mind to turn to God.[79] Inner seeing and hearing, then, become aspects of the desire for an inner conversion toward God. This conversion opens "the eyes and ears of the mind alone":

> leaving behind the senses, turn your mind back onto itself in the full circle of self-examination. Leaving the body and turning your mind to itself, you will at once see that it is an incorporeal sphere, whose circumference, that is, the intellect and the will, revolves through the incorporeals; but its centre, being the life and substance of any body, is independent of any hinge. . . . Again observe in this transparent circle of your mind, as in a mirror, and by observing reach everywhere in the world and everywhere outside the world, the spherical intellect and the intelligible sphere, whose centre is everywhere, since it penetrates the universe infinitely,

77 Ficino 1576 (1962), vol. I 816; 1975–2009, 5 (1994): 23.

78 The literature on Ficino's ideas about the concept of *furor* is vast, but particularly instructive are Allen 1984b, 41–67; and 1995, 89–148.

79 Matthew 13:15 and John 1:10.

> but whose circumference is nowhere since it reigns infinitely supreme above the universe.[80]

Ficino reports that in this dream he heard with his "inner hearing" the inaudible music of the cosmos, just like the little man at the bottom of an illustration by Fludd (fig. 3.1).[81]

The body and soul of the little human being in this figure are connected with (1) the elemental world of the four elements, (2) the ethereal world of the planetary spheres, and (3) the empyrean realm of angelic intelligences through a complicated network of harmonic proportions of octaves (diapasons), fifths (diapentes), and fourths (diatessarons). The harmonic relationship of man and the cosmos is an expression of cosmic sympathetic vibration. Hence, dreaming and experiencing ecstasy are mental states in which the phenomenon of cosmic sympathetic vibration can occur.

Subsequently, Ficino explains that in this celestial Paradise "even though it appears that each human soul has his own especial star, it is only by particular rays that the universe is open and clear to each individual".[82] And he continues with the following simile: just as fish "on the sea-bed do not see heaven, but water; not the pure light of the heavenly bodies, but faint, dark images of them in the muddy water", man with his normal sense of hearing is able to perceive the perfect music of the spheres only in a distorted way.[83] Yet from his dream perspective in the celestial Paradise, Ficino is granted a glimpse of the music

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80 *Age iam mentem . . . tuam in se ipsam relictis sensibus circulari quadam sui ipsius animadversione reflecte. Videbis protinus mentem tuam quando in seipsam demisso corpore flectitur, esse incorpoream quandam sphaeram: cuius circumferentia quidem: id est intelligentia et voluntas per incorporea volvitur. Centrum vero, id est, vita atque substantia, corporis alicuius cardini non innititur. . . . Age iterum tuo isto lucidiore mentis circulo, quasi speculo quodam, speculare speculandoque attinge in mundo ubique atque undique extra mundum, sphaericum intellectum, sphaeramque intelligibilem cuius cent*[*r*]*um quidem sit ubique dum infinite penetrat universum, sed circumferentia nusquam dum infinite super eminet universum*. Ficino 1576 (1962), 1: 816; 1975–2009, 5 (1994): 25.

81 This is an original seventeenth-century illustration from Robert Fludd's *Utriusque Cosmi Historia*, 1624 (2nd ed.). Although the three illustrations by Robert Fludd used in this chapter are later visualizations of ideas about *musica humana* and contain small deviations from Ficino's music philosophy and even some mistakes, they illustrate Ficino's core beliefs quite well.

82 Ficino 1576 (1962), 1: 817; 1975–2009, 5 (1994): 26–27. Ficino refers here to *Tim.* 41–42 and Dante, *Paradiso* IV, in Dante 1987, 49–54.

83 Ficino 1576 (1962), vol. I 818; 1975–2009, 5 (1994): 27. Ficino refers here to Plato, *Phaedo* 109d–110.

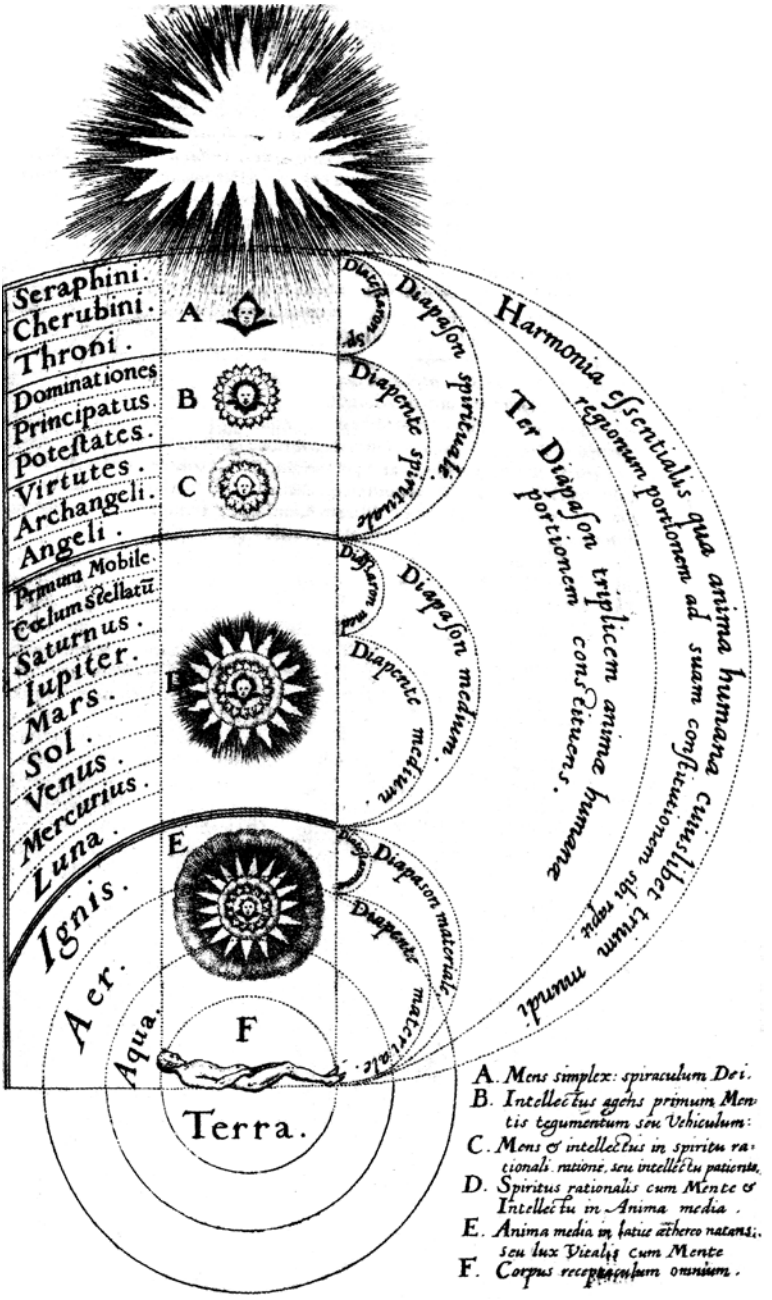

FIGURE 3.1 *The essential harmony by which the human soul draws into its constitution any portion of the regions of the elemental, ethereal, and empyrean realms. From Robert Fludd,* Utriusque Cosmi . . . Historia *II, a, 1, 93.*

of the spheres. As this experience is beyond normal language, he is able to express his inner experience only in rhetorical questions:

> What shall I say of the innumerable host of stars unknown to you? What of the wonderful variety and order of their movements unrecognised by you? What of the ineffable sweetness of that harmony which the varied motion of the spheres and the harmonious tempering of all the globes restore?[84]

After Ficino is called back to Earth, he says farewell with an exhortation to lead a virtuous life by implementing God's archetypal harmony on Earth, because only then will one's soul, once it has reached the hereafter, experience "the wonderful sweetness with which we are filled in our true home".[85]

To conclude, Ficino's interpretation of the idea of the transmigration of the human soul (*Tim.* 42b–d) resulted in a reconstruction of his theory of the soul's journey through the heavenly spheres that ultimately is based on a particular view of human freedom. Ficino formulated that view in his *Compendium* ("Distinctiones") CIII, where he imagined man as a creature that stood apart from the great chain of being and that could envision the angelic heights as well as the brutish depths of the universe and thus to a certain extent was free to make of himself what he willed. Accordingly, Ficino's interpretation of Plato's concept of the transmigration of the soul as a spiritual journey through the planetary spheres is meant to point out how a human soul can elevate itself to ever higher spheres of being. As such, the stories of journeys through the spheres are guiding moral examples representing life as if it were harmonious. They enable man during a contemplative ascent to discover supernatural influences on his life and direct them for his own benefit or take steps to counteract them. Making music and listening to it are powerful means to enter a deeper realm of being where one is granted a glimpse of perfect harmony, which stimulates the rediscovery of the lost harmony of one's soul. In my opinion, which nuances Tomlinson's (1993, 170ff.) view on the matter, it remains unclear whether Ficino envisaged this kind of spiritual journey through the spheres as

84 *Quid de stellarum innumerabilium copia dicam vobis ignota? Quid de mirabili motuum diversitate et ordine vobis incognito? Quid de inaestimabili harmoniae illius suavitate, quam reddit varius sphaerarum motus globorumque omnium consona temperatio?* Ficino 1576 (1962), 1: 818; 1975–2009, 5 (1994): 27. This passage is a paraphrase of Macrobius's *Commentarii in somnium Scipionis* II.1–2. See Macrobius 1952, 193.

85 Ficino 1576 (1962), 1: 820; 1975–2009, 5 (1994): 30.

a metaphor for a special transporting experience or genuinely believed in the literal ability of the human soul to leave the body during life on Earth.

3.4 A Fifteenth-Century Dynamic Interpretation of *Musica Humana*

In the "Distinctiones" of his *Compendium*, Ficino explains a human life in terms of a fourfold harmonic structure in which youth is compared with spring, and winter with old age.[86] Furthermore, as Allen (1994, 101) explains, in contrast with many traditional, static explanations of *musica humana*, Ficino presents it in a dynamic way, which is in accordance with his cosmology and philosophy of nature. Hence, in his view the ratios between the different parts of the human soul are subject to historical change. He states that during the golden, Saturnian age, the relationship of the intellect to the reason was in the ratio of 4:3; that of the reason to the irascible power was in the ratio of 3:2; and that of the irascible power to the concupiscible power was in the ratio of 2:1. During the silver, Jovian age, the same proportions obtained, except that the ratio of intellect to reason was reversed. Ficino interprets the late fifteenth century as an exclusive moment in history in which after the dark Middle Ages the conditions of these two Hesiodic ages may be recaptured, provided that the right proportions are observed by elected *prisci theologi* like himself who are capable of interpreting them. His detailed study of the harmonics of the *Timaeus* functions as a powerful means to obtain the key to the harmonic structure of both the universe and man to reveal their secrets.

3.4.1 *The Harmonic Structure of the Human Body and Soul*

As Etienne (1998, 433) has maintained, Ficino has a more positive attitude to the human body than many of his Christian predecessors. This positive opinion is grounded in the Aristotelian view that the harmony of the macrocosm is mirrored in every human being on the level of his soul as well as his body, which is conceived of as a "superlatively well-tempered complexion", which is "impossible without the most exact tempering of the elements".[87] In addition, Ficino finds support for his view that the human body is a perfect creation in the *Timaeus*, where Plato argued "that God could have made man's body so

86 *CiT* ("Distinctiones") LXXXVI, 90^{v}, corresponding to *Tim.* 81b.

87 *TP* X.ii.10, in Ficino 2001–2006, 3 (2003): 126–167. For an introduction to the theory of human complexion, see Siraisi 1990, 101–104.

strong that it would not be injured by external things, but that He wished to make it softer so that it would be better prepared for contemplation".[88]

Ficino's explanation of music's influence on man builds on this traditional conception of man as a harmonic creature, who as a microcosm mirrors the fourfold structure of the macrocosm.[89] The human body can be defined in terms of the four humours (blood, phlegm, yellow bile, and black bile), which are fluids composed of and affected by the four elements (earth, air, fire, and water) and the four qualities (hot, cold, wet, and dry).[90] The human body can be divided into three parts, based on the principal cavities of the (1) lower belly, (2) thorax, and (3) head, which are, respectively, inhabited by the two mortal, irrational parts and the rational part of the human soul which is the closest to the immortal soul.[91]

Man as microcosm mirrors the harmonic structure of the macrocosm in such a way that the three realms of the universe correspond to the three principal cavities and their parts of the human soul in the human body: the macrocosmic realm of the four elements of the cosmos corresponds to the lower part of the mortal irrational soul, defined as 'concupiscible', which inhabits the region of the lower belly, which is the seat of the liver; the macrocosmic realm of the fifth element of ether, which is composed of the four elements, corresponds to the higher part of the mortal irrational soul, defined as 'irascible', which inhabits the thorax, which is the seat of the heart; and finally the realm of the Empyrean, the highest heaven, corresponds to the head, which is the seat of the rational soul (fig. 3.2). Ficino declares with Plato at *Tim.* 87c and 89d that it is the task of a human being to develop and harmonize all three parts of the human soul.

As Etienne (1998, 432) explains, Ficino defines the human soul in an Aristotelian sense as the substantial form of a human body. Because soul "contains, stops, and turns the body, it is superior to it".[92] Ficino follows Plato at *Tim.* 41d–42d in arguing that in principle, the harmonic structure of the human rational soul is identical to that of the World-Soul. This identity between the World-Soul and the human soul is difficult to observe, because according to *Tim.* 43c–44a, the human soul has become distorted and disordered

88 *TP* XIII.i.4, in Ficino 2001–2006, 4 (2004): 114–117. Ficino refers in this passage to *Tim.* 41b–47e, esp. to *Tim.* 42a and 42e.

89 For the history of different conceptions of the relationship between the human body and mind, see Wright and Potter 2000.

90 *Tim.* 81e, corresponding to *CiT* ("Distinctiones") LXXXVII, 90^{v}–91^{r}; and *Tim.* 83a–e, corresponding to *CiT* ("Distinctiones") LXXXVIIII–LXXXXII, 91^{r}–91^{v}.

91 *Tim.* 70d–72b, corresponding to *CiT* XXXXV, 79^{r}.

92 *TP* VI.vii.2, in Ficino 2001–2006, 2 (2002): 168–169.

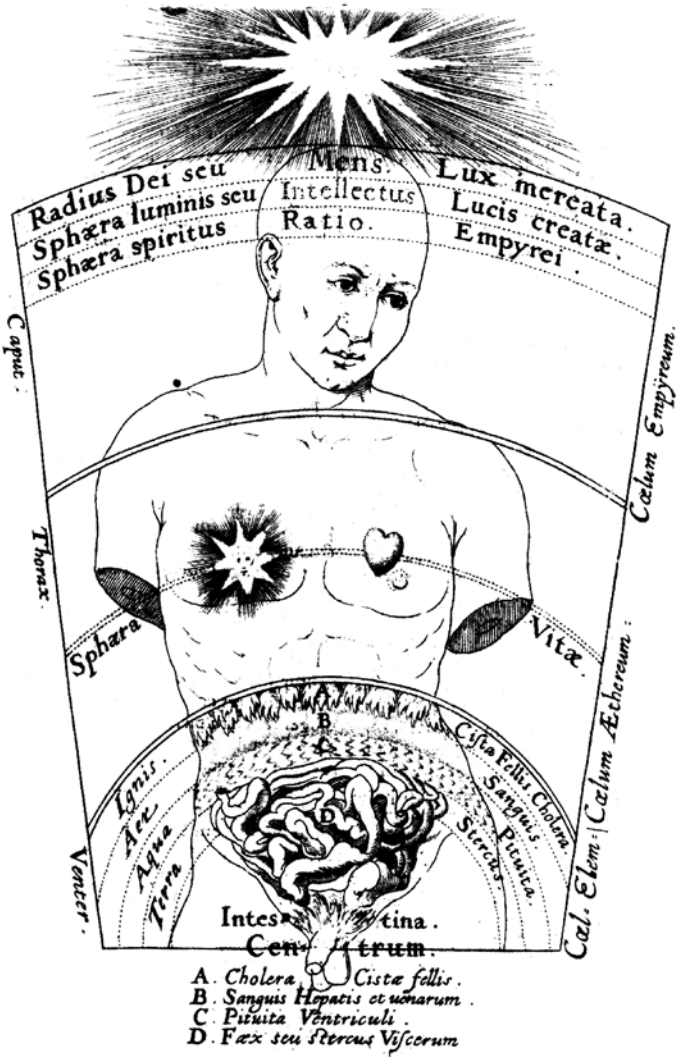

FIGURE 3.2 *Threefold man. From Robert Fludd,* Utriusque Cosmi . . . Historia II, *a, 1, 105.*

during birth through its incarnation in a human body and the flow of sensation which accompanies this process. In principle, however, the World-Soul and the human soul are ordered by the same numerical proportions that produce musical harmonies in earthly music. These three structures are manifestations of the same archetypal harmony.

If we begin to analyse Ficino's account of the harmonic structure of the human soul from his *Compendium* in further detail, we encounter the same

mixture of Pythagorean, Neoplatonic, and biblical number symbolism that we have seen in his discussion of the musical universe. His discussion of the harmony of man's body and soul begins with *Tim.* 44d–45b, where Plato had argued that man is made erect, so that he can contemplate the cosmic order, whose movements are manifestations of the World-Soul. Because humans have sight and can look upward, they are able to observe the planets and stars, and this gives them an understanding of number and time and the ability to investigate the mysteries of man and the universe.[93] Eyes and ears enable them to attune themselves to the various, often chaotic, movements in their own souls according to the divine Intelligence manifested in the order of the planetary spheres (*Tim.* 47d–e).

The human soul animates the human body in exactly the same way that the World-Soul animates the cosmic body.[94] Accordingly, numbers, ratios, and proportions are given an important explanatory function within Ficino's account of the human soul, for through them a human being may detect unity within the multiplicity of the world. Having reached an understanding of the World-Soul, Ficino dedicates himself to the question of how to utilize this knowledge in the context of the human reason, intellect, and mind.

The most important elements composing the human soul are the cognitive faculties. Ficino's discussion of this topic basically follows Theon of Smyrna, who stated that the four cognitive faculties—reason, knowledge, opinion, and sensation—are an expression of the *tetractys*.[95] In a normative way Ficino imagines the cognitive faculties as different rungs of a ladder that ultimately leads us to see God. Yet he does not deal with the sense of hearing and the mind as two completely separate cognitive faculties. In Ficino's Letter 13—his variation on the *Dream of Scipio*—he uses "the ears and eyes of the body" (*corporis auribus oculisque*) alongside the "eyes and ears of the mind alone" (*mentis oculis auribusque*) to indicate that between the normal sense of hearing and the mind there is an intermediary faculty of inner hearing, which functions as a mean between the two extremes.[96]

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93 *Tim.* 46e–47e, corresponding to *CiT* XXXXII, 77^{v}, and XXXXIII, 78^{r}.

94 This is a logical consequence of Ficino's theory of world harmony, which I have analysed at 2.5.2 in terms of an anthropomorphic projection.

95 In the tradition of the harmony of the spheres, within the subdiscipline of *musica humana* whole sets of analogies were devoted to consonances built on the numbers of the *tetractys* equalling the proportions of the human body and soul, cognitive faculties, human virtues, the human embryo's gestation period, and ages. See Cornford 1937, 70.

96 Ficino 1576 (1962), 1: 816; 1975–2009, 5 (1994): 23.

Plato had explained at *Tim* 47b–c that the principal function of sight is to allow human beings to observe "the orbits of intelligence in the heavens and apply them to the revolutions of our own understanding. For there is a kinship between them, even though our revolutions are disturbed, whereas the universal orbits are undisturbed". And, in addition, "once we have come to know them and to share in the ability to make correct calculations according to nature, we should stabilize the straying revolutions within ourselves by imitating the completely unstraying revolutions of the god".[97]

For man, becoming a co-creator of his harmonic nature means first of all that he must try to imitate mentally "the completely unstraying revolutions of the god". As musical sound is a manifestation of the archetypal harmonious revolutions in the World-Soul, musical experience can stimulate the rediscovery of the original harmonious revolutions in the human soul. Ficino's *Compendium* paraphrases the idea expressed at *Tim.* 47c–d that sound and hearing are given to man for this purpose:

> Once again [Plato] confirms that man is born to contemplate heavenly phenomena or, rather, as far as it is in his power, to imitate the heavenly Mover himself. And what Plato had said about the sense of seeing he says about the sense of hearing as well: it is given to us for the sake of contemplation and learning; and also in order to enable us on the basis of audible harmony to bring the movements of our soul, too, into a harmonious order.[98]

The inaudible music of the spheres as an expression of the harmonic structure of the World-Soul is made visible in the revolutions of the planets and stars. This implies, according to Ficino, that the intelligible harmonic order that the heavenly bodies present in their orbits can be 'heard' with one's inner ear by seeing and studying the planets. Furthermore, the music of the spheres can be deduced from the Pythagorean consonances, which exemplify the harmonic structure of the World-Soul in earthly music. The circular movements of the Pythagorean consonances are akin to the original circular revolutions of the human rational soul. Music is given not for the sake of pleasure but as a companion for the soul to bring the revolutions in the human soul, which have

97 *Tim.* 47b–c, in Plato 2000, 35–36.

98 *Tum confirmat iterum hominem esse natum ad caelestia contemplanda, immo vero ad ipsum caeli motorem pro viribus imitandum. Et quemadmodum dixerat visum, sic et auditum contemplationis et disciplinae gratia nobis esse tributum; item ut per sensibilem harmoniam, animi quoque motus harmonice componamus. CiT* XXXXII, 77^{v}.

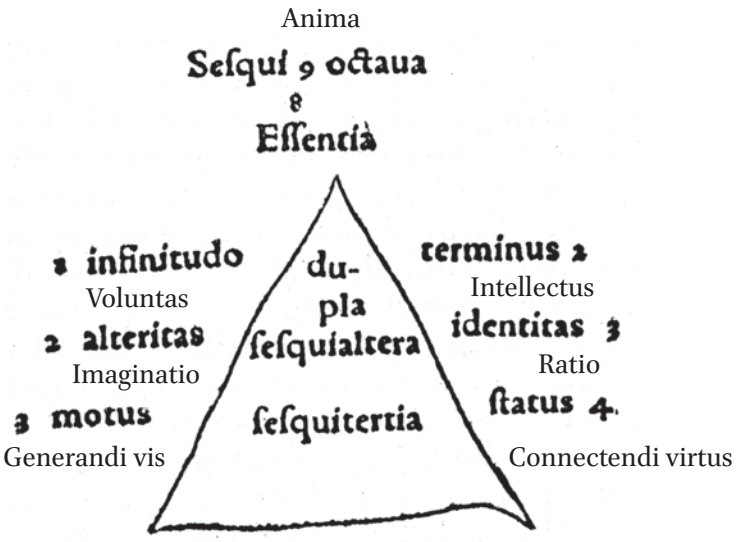

FIGURE 3.3 *A reconstruction based on Ficino's description of a triangular figure linking harmonic ontological relationships with cognitive faculties of the human soul.*

become distorted and inharmonious, into their original circular form and corresponding harmony.

In chapter XXVIII of Ficino's *Compendium* the harmonic structure of the human soul, just like the World-Soul discussed at 2.5.1, is visualized as a triangle, of which the numbers of the *sesquitertia* ratio (4:3) at the base are followed by the smaller numbers of the *sesquialtera* ratio (3:2) and the *dupla* ratio (2:1), and these in their turn can be ultimately reduced to absolute unity at the apex, which Ficino interprets in terms of the ratio of the whole tone (9:8) (fig. 3.3).[99]

Two-dimensional figures such as triangles are suitable for an explanation of the concept of soul, for, as Allen (1994, 96–97) shows, if one imagines the constitutional characteristics of an individual soul as a plane, it can serve to validate the efficacy of, and to enlarge the scope of, a purely mathematical magic.[100] That is, it facilitates an understanding of how things in the universe with a

99 This figure is a reconstruction of Ficino's ideas about the triangular hierarchy of the human cognitive faculties. This hierarchy corresponds to the ontological hierarchy of the cosmos as represented in figure 2.9.

100 Ficino also deals with the triangle as the figure of soul in *TP* XVII.ii.12, in Ficino 2001–2006, 6 (2006): 22–23. This figure is discussed in Oehlig 1992, 121–144; and Albertini 1997, 219–231; 2002. For Ficino's aesthetic of the One in the Soul, see also Albertini 2010. For the role of the hypotenuse of the spirit in Ficino's demonic mathematics, see Allen 1999.

similar numerical structure interact with each other. Ficino's belief in the comprehensibility of the harmonic structure of the world relies on the identity of the soul with the elements used in mathematics:

> Mathematical [entities] accord with the [cosmic and human rational] Soul, because both are thought to be intermediaries between the divine and the natural. The musical numbers [i.e., the ratios belonging to the main Pythagorean consonances] accord most with the Soul. They are mobile and therefore they correspond with the Soul, which is the principle of movement. The Soul is defined not only by numbers but also by [geometrical] figures, so that through numbers it can be thought of as incorporeal, but through figures it can be recognized as naturally directed towards the corporeal. Hence, the triangle accords with the Soul.[101]

Subsequently, the category 'Soul' in the hierarchy of being—in which the human soul participates—is characterized by the circular number 5 and circular movement.[102] Both the World-Soul and the human rational soul are composed of five categories. These five categories are transcendental concepts, which Ficino uses to build bridges between the intelligible realm of the divine Architect-Musician and the sensible realm of the physical world:

> Now [God] composed the Soul in five ways: first, indeed, from the five classes of being themselves; second from numbers; third from musical consonances based on numerical ratios; fourth from the origins of [geometrical] figures; and fifth from the principles of movements; that is, so that thus by possession of the principles of metaphysics and mathematics, it might know all things—namely, essences, numbers, musical sounds, figures, and movements. Likewise, insofar as the Soul is related to divinity, it is composed of the classes of things that are inherent in divinity from the very beginning.[103]

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101 *Congruunt animae mathematica: utraque enim inter divina et naturalia media iudicantur. Congruunt musici numeri animae plurimum: mobiles enim sunt; proptereaque animam, quae est principium motionis, rite significant. Non solum vero per numeros, sed etiam per figuras describitur anima, ut per numeros quidem incorporea cogitetur, per figuras autem cognoscatur ad corporea naturaliter declinare. Convenit triangulus animae. CiT* XXVIII, 68^{v}, 69^{r}.

102 For Ficino's discussion of circular numbers, see 2.4.1.

103 *Componit autem animam quinque potissimum modis: primum scilicet ex ipsis quinque rerum generibus; item ex numeris; tertio ex concentibus numerosis; quarto ex initiis figurarum; quinto ex principiis motionum; videlicet ut possidens metaphysicorum mathemati-*

Given that the human soul participates in the category of Soul, it is capable of knowing the harmonic archetypal structure of the whole cosmos—including itself—which can be expressed in terms of (1) essences, (2) numbers, (3) musical sound, (4) geometric figures, and (5) movement.

Ficino's theory of the relationship between Soul, numbers, and music is partly borrowed from Augustine. As discussed at 2.4.1, his *Theologia Platonica* uses extensive citations from Augustine's *De musica* (*On Music*) to prove that the human soul is immortal because it is formed by the divine Mind. Building on Augustine's theory of judging and audible numbers in his *Compendium*, albeit implicitly again, Ficino further develops the Neoplatonic idea that music has the power to shape and condition the human soul. Yet whereas the fearful Augustine often reacts negatively to this somehow uncontrollable musical power, Ficino reacts positively, because he believes that music may help people to become better Christians.[104]

In his *Theologia Platonica* Ficino followed Augustine in explaining (1) how the human mind is raised to divine ideas during man's quest for his origin, and (2) how God continually pours understanding into human beings. Ficino contends that this happens, among other ways, through the sense of hearing, and he substantiates his claim by arguing that the sense of hearing and sound share the same substance.[105] Hence, a numbered sound is perceived in a numbered way, because the sound and man's perception of it both participate in the archetypal harmony of the World-Soul.

In the musical section of the *Compendium*, Ficino elaborates this view by arguing that in order to understand how a numbered sound is perceived, one must not mistake the numbers in the consonances of earthly music for judging numbers. Ficino argues that because the natural and judgement-making faculty that is present in the ears does not cease to exist when there is silence, the numerical structure in the human soul must have an origin other than the audible numbers and their ratios in musical sound. He deduces that the human soul does not contain the mathematical proportions of consonances in earthly music, but rather, it contains ideal numbers by which these mathematical proportions of musical sounds can be judged.

In an explanation of the animated, rationally and emotionally very efficacious substance of musical consonances, Augustine's two types of numbers

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corumque rationes ita cuncta cognoscat, scilicet essentias, numeros, concentus, figurasque et motus. Item quatenus anima divinis cognata est, ex rerum generibus quae primo divinis insunt, dicit esse compositam. CiT XXVIII, 68v.

104 For the use of Augustine's *De Musica* in Ficino's aesthetics, see Oehlig 1992, 10–50.

105 Walker 1958, 7.

turn up. Following Augustine, Ficino distinguishes between 'audible numbers' (*numeri sonantes*), which are present in consonances in the physical reality of earthly music, and 'judging numbers' (*numeri iudicales*), which are present as perfect intelligible forms in the human soul.[106] The audible numbers belong to the physical realm of nature, time, and space and are therefore transitory, while the judging numbers belong to the ultimate reality of intelligible harmonic forms and are therefore eternal:

> Therefore, because musical consonance is virtually alive, rational, and effective, and inasmuch as it is as similar as possible to and as appealing as possible to the Soul, it claims the whole person for itself. And what is more important, through this consonance the Soul is created and all things are created, through it they are preserved, and through it they are moved. Not inappropriately, our Plato described the Soul as creator and conservator of all that is natural, principally through musical numbers and ratios; through numbers, I say, not through mathematical non-essential qualities, as calumniators misrepresent [Plato], but through the ideals of numbers and their metaphysical ratios.[107]

The judging numbers defined in this passage as 'ideals of numbers and their metaphysical ratios' are situated on a prior and deeper level of being and enable the human soul to judge whether a consonance in earthly music is an echo of divine harmony or not.

Following Plato and Augustine, Ficino clearly believes that the human soul possesses an inner mental faculty for numbers, ratios, and proportions, which is modelled after the harmonic principles of the World-Soul. The rhythm of physical processes such as the pulse and breathing is explained on the basis of the existence of this inner mental faculty.[108] Ultimately, numerical order in

106 Here, Ficino freely follows Augustine's theory of music as a means of spiritual growth. For an interpretation of Augustine's ideas regarding the place of music and number in a theory of "art, fall and return", see O'Connel 1978, 65–90, esp. 76–90.

107 *Cum igitur consonantia musica quasi viva sit et rationalis et efficax; item utpote quam simillima, animo quam gratissima; rursus totum sibi hominem vendicet, et quod maius est, per ipsam factus sit animus, facta sint omnia, per ipsam conserventur, per ipsam et moveantur; haud ab re Plato noster animam effectricem, servatricem omnium naturalium musicis praecipue numeris rationibusque descripsit; numeris, inquam, non mathematicis accidentibus, ut quidam calumniantur, sed idealibus numerorum metaphysicisque rationibus constitutam. CiT* XXVIIII, 69^{v}.

108 See Kristeller 1943, 306–307.

a sensory object such as music is only an incentive to gain awareness of this inner faculty of the human soul:

> [The Soul], certainly, would not be able to distinguish either universal harmony or absolute proportions—in the air through music as in the body through nature—unless it had the causes [of harmony, i.e., judging numbers] in itself, and if there were not some self-subsistent harmony beyond the harmony that is created subsequently in other things [e.g., in the audible numbers of consonances in earthly music]. Our soul consists of all the same proportions as the World-Soul. And just as they are not mathematical ratios in that Soul, so, too, they are not [mathematical ratios] in our souls either, but natural [ratios], with the power not only to assess mathematical proportions but also to contrive and generate them.[109]

In Ficino's theory of knowledge, the judging numbers function on the level of memory, which is situated between sense perception and reason. These numbers, belonging to the soul, enable man to abstract from temporal aspects of the act of hearing and to become aware of the deeper level of memory in his soul, which transcends the act of hearing. Consonances in earthly music are able to awaken the soul's archetypal harmonic forms, which, when led forth into act, enable the soul to rise from the sensible to the intelligible and to be joined with the realm of Ideas. Thus, consonances are the soul's companions on its quest to regain the lost memory of its harmonic origin.

Ficino associates this turning from audible numbers to judging numbers with a higher sort of memory and consciousness, one that restores and records the soul's original circular 'spiritual motions'. This is a memory, he explains, that indicates that the unchangeable equality (Rest, Sameness, at *Tim.* 35a), sought by the Soul among the numbers of time (Motion, Difference, at *Tim.* 35a), is an equality that no soul could ever desire unless it were already known from elsewhere. Questioning serves merely to recall the soul, to turn it back to renewed contemplation of higher and deeper levels of being. In line with a Platonic theory of anamnesis, he concludes that the soul must already know

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109 *Anima profecto, non posset universam harmoniam diiudicare absolutasque proportiones promere, tam in aere per musicam, quam in corpore per naturam, nisi ipsa harum causas in se haberet, essetque harmonia quaedam in se subsistens super harmoniam in aliis inde factam. Constat enim anima nostra ex omnibus proportionibus, quibus anima mundi. Quae quidem sicut nec in illa, ita nec in nostra rationes quaedam mathematicae sunt, sed potius naturales, vim habentes ad proportiones mathematicas, non iudicandas solum, sed machinandas etiam atque generandas. CiT* XXVIIII, 69^{v}.

what it is now incited to remember. In sum, the soul must have known the harmonic structure of the World-Soul and forgotten it, so that now it needs an external (musical and spiritual) impulse to recall it to actual memory.[110]

In his epistemology, Ficino gives music a central place, similar to the place of Soul. He deals with them in the same way because both music and Soul manifest themselves at the physical-sensible, as well as the metaphysical-intelligible, level of the universe. Music can be sensed by the ear and simultaneously be understood by the mind, which is receptive to numbers, ratios, and proportions. Because of this structural similarity, music functions in Ficino's epistemology as a normative model for the human soul. In the same way as high and low tones are tempered in music into a perfect consonance, so the human soul, in the act of understanding, must bridge the physical and intelligible extremes of the universe.[111]

As I have argued at 2.4.2, musical consonances and their numerical ratios are a form of mathematical knowledge that enables man to connect the sensible with the intelligible world. They demonstrate that a seemingly infinite world of unordered sound (*infinitudo*) is in fact determined by harmonic order (*terminus*). The Pythagorean consonances, moreover, provide a perfect example of how order, or 'Sameness' (*identitas*), is the basis of all seemingly chaotic sound in nature, or 'Otherness' (*alteritas*). Furthermore, through sound and rhythm, the musical consonances are connected to 'Motion' (*motus*), which is a feature of the physical realm, while through their ratios, they are connected with 'Rest' (*status*), which is an essential feature of the intelligible realm (fig. 2.9).

In Ficino's *Compendium* the harmonic structure of the human soul is defined not only in terms of numbers and proportions but also in terms of geometrical figures. The figure of the circle is the ideal figure for the human soul.[112] Before its incarnation in a human body, the human rational soul was perfectly circular or spherical, but afterwards it became distorted by incarnation in a physical body as well as by external experience. Incarnation made the soul multiple and more earthlike, the element paired with the Platonic solid of a cube. Moreover, the return of the human soul to its original circular shape during life on Earth is visualized by Ficino by this newly invented triangular figure, representing the teleological process of 'infolding' itself from plurality to unity (*pluribus unum*) (fig. 3.3).

110 See Augustine 1949, 36–37.

111 *CiT* XXXI, 70^{v}.

112 *TP* IV.i.21, in Ficino 2001–2006, 1 (2001): 280–283.

The figure of a triangle ideally fits Ficino's theory of knowledge. The triangular Lambda, in fact, is a visible representation of how unity and multiplicity relate in the macrocosm as well as in human knowledge:

> As the triangle extends from one angle into two, so the Soul, flowing out from an indivisible and divine substance, falls into the nature of the body, which is totally divisible. And if compared with things divine, it seems divided.[113]

Ficino now takes on the major task of demonstrating that the multiplicity of powers and cognitive faculties in the human soul is only appearance, beyond which there is perfect harmony and unity. For this purpose, in chapter XXIIII of his *Compendium*, Ficino uses the triangular Lambda again, now as a conceptual and teleological foundation for his theory of knowledge. Quickly, however, he detects an obvious lacuna in the *Timaeus* and the traditional interpretations of the Lambda. Nowhere, he notes, is it explained precisely how the numbers, ratios, and proportions exemplifying the harmonic structure of the World-Soul should be applied to the human soul:

> Now, as for the double [2, 4, 8] and triple [3, 9, 27] intervals of numbers, and the rest that we mentioned, what they are supposed to mean in the human soul is unknown among the Platonic writers up to now [i.e., we don't have any surviving texts that declare what they think]; still, perhaps we may enunciate in the present context that it might have been like this, so to speak.[114]

Subsequently, Ficino uses this lacuna to insert his own view of the structural similarities between the World Soul and the human soul. Rather than faithfully following Plato, Ficino completes his interpretation of the harmonic structure of Plato's World-Soul with his own theory of the human immortal soul, which is made in the image and likeness of God. The Lambda enables Ficino to explain how man is able to become a co-creator of his own nature. The triangle is used to symbolize man's quest for true knowledge, moral goodness, harmony, and

113 *Quia sicut triangulus ab uno angulo in duos protenditur, sic anima ab individua divinaque substantia profluens, in naturam corporis labitur, penitus divisibilem. Ac si cum divinis conferatur, divisa videtur. CiT* XXVIII, 69r.

114 *Intervalla vero numerorum dupla et tripla et reliqua quae praediximus, quid proprie in anima sibi velint, etsi apud Platonicos adhuc est ignotum, licet tamen in praesentia forsan hunc in modum* (*ut ita dicam*) *vaticinari. CiT* XXXIIII, 74r.

beauty. The different levels of the triangle represent different rungs on a kind of Jacob's ladder connecting Heaven and Earth, which in its turn is associated with the different notes in a musical scale.

Ficino argues that just as the divine unity of the World-Soul flows out into the multiplicity of the physical cosmos, the divine unity of the human soul flows out into Intellect and Will, Reason and Imagination, and the Capacity to connect and the Capacity to generate (fig. 3.3):[115]

> Furthermore, in order for us to be able to understand how the [human] soul participates in harmonic proportion, [we must interpret Soul] not only in terms of the five classes of things and the two elements but also in terms of its own powers, which are distributed in seven degrees. Let us now bring the individual powers of the [human] soul back to the individuals, classes, and elements. Now these powers are Unity, Intellect, Will, Reason, Imagination, the Capacity to connect, and the Capacity to generate.[116]

The ascent from the bottom of the triangle to its apex is conceptualized through the three main consonances, which are composed of the harmonic numbers of the World-Soul; in increasing degree, the *sesquitertia* (fourth, 4:3), the *sesquialtera* (fifth, 3:2), and the *dupla* (octave, 2:1). These ratios correspond to the three essential binary pairs in Ficino's hierarchy of being as well as the three pairs of human cognitive faculties.[117]

Subsequently, Ficino further explicates the analogies between the harmonic design of the World-Soul and the human soul:

> Therefore, let us make the following connections: namely, of the Unity of the soul to Existence, the Will to Infinitude, the Intelligence to the Limit, the Imagination to Difference, the Reason to Sameness, the Capacity to generate to Motion, and the Capacity to connect to Rest. And let us

115 For an introduction to Aristotle's theory of the powers of the soul, which is used here in Ficino's *Compendium*, see Johansen 2012.

116 *Ceterum ut excogitare possimus harmonicam participandi proportionem in anima, non solum secundum quinque rerum genera et elementa duo, verumetiam secundum vires proprias, septem gradibus distributas. Reddamus iam singulas animae vires singulis vel generibus vel elementis. Sunt autem hae vires, unitas, intelligentia, voluntas, ratio, imaginatio, vis connectendi, vis generandi. CiT* XXXIIII, 74r.

117 For the relationship between passions and numbers in Ficino's music philosophy, see Boccadoro 2008.

> imagine the proportions between these powers as similar to the proportions of those above. We could say that in our soul a *dupla* proportion (2:1) exists between reason and concupiscence [i.e., desire, lust], a *sesquialtera* proportion (3:2) between reason and irascibility [i.e., aggression, wrath], and a *sesquitertia* proportion (4:3) between irascibility and concupiscence—although some say that a *sesquitertia* proportion exists also between reason and irascibility. But if we have said that the proportions in the [human] soul are equal to those of things, we meant that they have to be understood not as arithmetically matched but as harmonically equal.[118]

Both the Capacity to connect and the Capacity to generate, which are indicated on the base of the triangle and which correspond to the lower part of the irrational human soul, are represented in the triangular diagram by the consonance of a *sesquitertia* (fourth, 4:3). Reason and Imagination, which correspond, respectively, to the higher part of the irrational soul and the rational soul, are represented by the consonance of the *sesquialtera* (fifth, 3:2). Intellect and Will, which correspond, respectively, to the rational soul and the lower part of the irrational soul, are represented by the consonance of the *dupla* (octave, 2:1).[119] The powers of the human soul are also vertically connected with each other in a harmonic way. The Capacity to connect and Reason are in the proportion of 4:3; the Capacity to generate and Imagination are in the proportion of 3:2, as are Reason and Intellect; and Imagination and Will are in the proportion of 2:1.

Interpretation of this passage in chapter XXXIIII of Ficino's *Compendium* has exposed its many difficulties. Working from the 1576 edition of the text rather than the editio princeps of 1496, Oehlig and Albertini had trouble with Ficino's explanation of the harmonic structure of the human soul. Oehlig (1992, 134), for example, experienced some problems in answering the question of why Ficino equated the apex of the triangle with the proportion 9:8, representing soul as cosmic mean. Albertini (1997, 229), moreover, failed to notice that

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118 *Conferamus igitur hoc pacto, scilicet animae unitatem essentiae, voluntatem infinitudini, intelligentiam termino, imaginationem alteritati, rationem identitati, generandi vim motui, connectendi virtutem statui. Similesque superiorum inter has vires, proportiones excogitemus. Possumus in anima nostra dicere proportionem duplam esse inter rationem atque concupiscentiam, sesquialteram inter rationem et irascibilem, sesquitertiam inter hanc atque concupiscibilem. Quamvis nonnulli sesquitertiam etiam a ratione ad irascibilem esse dicant. At si aequales in anima proportiones rerum alibi esse diximus, non arithmeticam paritatem, sed aequalitatem harmonicam intelligi volebamus. CiT* XXXIIII, 74r.

119 For Ficino's concepts of Intellect and Will, see Albertini 2002.

in harmonic science the interval of a whole tone (9:8) does not represent Unity but is considered to be a complex proportion representing either the dissonant step in a scale of a whole tone or the mean of the diapason. Perhaps, these interpretative difficulties can be solved as follows.

First, the triangle—if interpreted top-down as a descent—is an explanatory model for the fall of the human soul through the planetary spheres before incorporation in a human body. In this process it acquires a kind of innate mathematical knowledge of perfect unity (1), the linear (2, 3), the planar (4, 9), and the cubic (8, 27), the terms by which every aspect of ultimate reality, as well as the three-dimensional physical cosmos, can be described.[120] Equipped with this innate knowledge of the harmonic structure of the universe, a human being is in principle able to know everything. Second, the triangle—if interpreted bottom-up as an ascent—explains how a human being during his life on earth is able to rise from knowledge of the multiplicity of the physical world through spiritual development to knowledge of the perfect unity of ultimate reality.

The cognitive faculties in the human soul are arranged in a hierarchical order that corresponds with the hierarchy of being. Within this hierarchy the pair of Reason and Imagination occupies a central position, while the pair of Will and Intellect is superior to them. The Capacity to connect and the Capacity to generate, on the other hand, are inferior to them. By harmonizing a pair of mental powers, the human soul is able to rise to ever higher spheres of knowledge and insight. This premise underpins Cassirer's (1963, 67) thesis that in Renaissance philosophy "reason and imagination no longer confront each other as strangers; for each is simply a different manifestation of the same basic power in man, the power to give form".[121]

In Ficino's theory of the harmonic structure of the human soul, the harmonic organizing principles and powers also operate on the level of man as a microcosm. This rational view of cosmic order is in principle incompatible with both divine and human free will and with wonders, miracles, and other extraordinary appearances in nature. While the Bible often reports the occurrence of miracles, they must originate from God himself, and therefore, they

120 See 2.4.1. Even though the number 27 is not used in Ficino's description on which figure 3.3 is based, and the ratio 9:8 at the apex of the triangle does not support this interpretation, in my opinion this still is the most comprehensive interpretation of this section in chapter XXXIIII.

121 For Ficino's theory of imagination as elaboration of sense impressions, see Kristeller 1943, 234–236. For the place of the imagination in his epistemology, see Kristeller 1943, 367–369; and Cocking 1991, 168–194.

are often explained as evidence of God's omnipotence and ability to make exceptions to the rules of His own Creation. To solve this paradox, Kristeller (1943, 270ff.) notes that in the Middle Ages, the school of voluntarism placed the will over the intellect in order to explain the cosmos from a Christian perspective that assumes the omnipotence and free will of God. All the same, rational order and will remained difficult to reconcile, because even within voluntarism the question remained how, given that His Creation was an act of free will, God could be bound by his own cosmic harmonic laws.[122]

Ficino's attempt to transfer the Timaean ontology associated with the Lambda to the realm of epistemology can be seen as a tentative solution to this problem. As Cassirer (1963, 131) pointed out, Ficino built his doctrine of the Soul and his doctrine of individual immortality less on his view of human knowledge than on his view of human will. To develop this thesis further, chapter XXXIIII of the *Compendium*, in my view, can best be interpreted through the lens of Ficino's combined theory of knowledge and love ('Eros' at *Tim.* 42a). In this theory, Ficino follows Plato in stressing the importance of the power of Eros in the cosmos. Eros belongs to a middle realm of being. He stands between the divine and the human, between the intelligible and the sensible worlds, and must relate and join them to each other. He can realize this union only insofar as he himself does not belong exclusively to either world. According to Cassirer (1963, 132), this contradictory nature of Eros constitutes the truly active moment of Ficino's Platonic cosmos: here a dynamic motif penetrates the static complex of the universe. If we replace 'Eros' in Cassirer's explanation with the four cosmic harmonizing powers discussed at V.2, the epistemological model presented in Ficino's *Compendium* suddenly becomes much clearer.

Following Cassirer's view, I believe that we can make sense of chapter XXXIIII of the *Compendium*—which is written to reinvent the meaning of *Tim.* 47b–e—when we replace the concept of 'love' with 'cosmic harmony', as a result of which the order of the different stages in the dynamic process of knowledge acquisition suddenly becomes a lot clearer. By associating love with *musica humana* (i.e., harmony on the level of the human soul), these stages come to indicate how man is capable of overcoming the distance between himself and the object of his knowledge. In Ficino's theory of knowledge, knowing an object means to negate the distance between object and subject. Knowledge acquisition is a dynamic intentional process in which the subject and object become one. This can take place through the experience of either love or harmony.

122 The classical treatment of Ficino's theory of free will is Kristeller 1943, 256–288; and the classical treatment of the relationship between the will and the intellect is Kristeller 1965, 463–494.

To sum up, Ficino's aspiration in chapter XXXIV of his *Compendium* was to demonstrate in a convincing way that during the spiritual ascent of the human soul—which can be characterized as a dialectical process—the human soul reaches ever higher levels of synthesis, to restore its inner harmony and to retrace its harmonic 'Essence'. During its spiritual journey, the human soul is able to transform itself in different hierarchical stages of ever 'deeper' being, represented by the different levels of the triangle: Motion into Rest, Difference into Sameness, and Infinitude into ordered Finiteness. If all multiplicity is overcome, at the end of its spiritual journey the human soul will find its Essence, represented as the apex of the triangle: a kind of inexpressible insight associated with the inaudible music of the spheres that transcends even the activity of the intellect and will.

Knowledge acquisition is understood teleologically as a search for wisdom and unity. It, moreover, is a completely reciprocal process between God and man. Man's striving towards God, represented in cosmic love and harmony, would not be possible without a reciprocal striving of God towards man. Love and harmonizing cosmic powers are as much the drive of the higher for the lower, of the intelligible for the sensual, as they are the yearning of the lower for the higher. In a free act of love, God turns towards the world; in a free act of His grace, He redeems man and the world. And in imitation of God his Creator, man with his free will and all his other cognitive faculties turns towards God.

Ultimately, then, in Ficino's *Compendium*, man for the most part is not determined by the planets, as argued by Plato at *Tim.* 41d–42d, but is free to think and to act. Furthermore, philosophizing and making music are the two most powerful ways of acting as co-creator of one's own harmonic nature. In order to understand why this is so, let us now have a closer look at how Ficino in his *Compendium* tries to formulate a physiological model of what precisely goes on when man listens to physical-audible and to metaphysical-inaudible music. The formulation of this model became a lifelong project, on which he continued to work in the different versions of his *Compendium* without ever achieving a satisfyingly clear and distinct result. As it is an important part of the transformation of traditional ideas about cosmic harmony and musical ethos, I will reconstruct this model in detail in the next section.

3.4.2 *A Scientific Model of the Sense of Hearing*

Light and sound and the accompanying senses of seeing and hearing are of equal importance in Ficino's philosophy.[123] But whereas his light metaphysics,

123 For an introduction to ancient theories about the five senses, see Onians 1954, 66–83. For an introduction to Aristotle's theory of the sense of hearing, which is used in both Ficino's *De sono* and his *Compendium*, see Johansen 1998, 148–177. Whether Ficino privileges the

demonic optics, and theory of seeing are relatively well explored, the Platonic theory of sound and hearing in Ficino's *Compendium* has yet to be treated in full.[124] In contrast to many of his predecessors in the *Timaeus* commentary tradition and in the tradition of the harmony of the spheres, Ficino expresses an interest in sound and hearing as natural phenomena. In line with the scientific criteria of his age, however, he interprets these phenomena by means of a Neoplatonic view of world harmony. The analysis presented here is based on Barker's (2001) study of how music and the liver are connected in the original *Timaeus*. Whereas Barker (2001, 86) suggests that his own speculations about the relationship between music, the sense of hearing, and the liver in the *Timaeus* are a modern reconstruction, I will demonstrate that we encounter similar conceptions of this relationship already in Ficino's interpretation of the *Timaeus*.

Neither in Plato's *Timaeus* nor in Ficino's *Compendium* is there a single, full-scale discussion of sound and the sense of hearing to substantiate the claim of the ethical power of musical sound to affect man's soul. In the *Timaeus* these topics are dealt with in occasional paragraphs here and there, among wider examinations of perceptible objects, the means by which we perceive them, and the functions that these perceptions serve.[125] These passages do not treat all aspects of the subject evenly: they repeatedly turn their attention to one very special aspect of the auditory domain. Hence, the dialogue offers only a partial theory of musical sound and musical hearing. In the interpretation of the passages dealing with these subjects, Ficino tries to connect and integrate them into his all-inclusive theory of world harmony and musical ethos. Although he bases himself for this purpose on the rich resources of the Neoplatonic tradition, much of his innovative musical-philosophical thought can also be found here.

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sense of seeing or the sense of hearing depends on the context. In fact, his light metaphysics and his account of cosmic harmony seem to be two equivalent sets of metaphors to describe the same teleological hierarchical structure of the world. See Walker 1958, 7; and Allen 1984b, 51–56.

124 Exceptions are Boccadoro 2000 and 2008, dedicated to Ficino's conception of *musica humana*, and Pennuto 2001, dedicated to Ficino's model of the sense of hearing in the context of his musical therapy. For the place of geometry and optics in Ficino's philosophy, see Otto 1991, 290–313; and Albertini 1997, 76–85. Even though Albertini analyses the influence of the propaedeutic subject of optics on Ficino's philosophy, she does not return to this analysis in her discussion of music as a propaedeutic subject at 85–87.

125 Even the brief account of sound and hearing at *Tim.* 67a–c lists as attributes of sounds only those relevant to music—that is, pitch, evenness, and volume—and explicitly points forward to a later study of the phenomenon of 'concordance'.

Like his Neoplatonic and medieval predecessors, Ficino is deeply convinced that musical sounds used in earthly music have a direct connection to the inner essence of things in nature. Given his comprehensive theory of world harmony, he cannot even conceive of the opposite thesis, that sounds have no inherent connection to things in nature and are purely conventional. Hence, in his *Compendium* Ficino uses a traditional theory of sensation according to which the sense organs are of the same structure and substance as what is sensed. Thus, the World-Soul, the human soul (including its connection with the faculty of hearing), and musical sounds all participate in the same archetypal structure of the most perfect figure: the circle.

The figure of the circle has a major function in Ficino's explanation of the processes by which music impinges upon the soul, especially those involving movements inside human bodies and the ways in which the soul apprehends them. In his interpretation of the Timaean ideas about sound and hearing, Ficino first tries to identify how music promotes the return of the revolutions of our soul to their proper order. He asks himself what exactly happens in the soul and the body of a person when in contact with earthly music, which is an echo of divine music.

The definitions of the concepts 'sound' and 'hearing' given at *Tim.* 67a–c play an essential part in Ficino's answer to this question. In this place Plato defines 'sound' and 'hearing' in general terms. Sound is defined at *Tim.* 67a as "the percussion of air by way of the ears upon the brain and the blood and transmitted to the soul". And hearing is defined in the same passage as the motion caused by the percussion that begins in the head and ends in the place where the liver is situated.[126] In the Timaean explanation of 'sound' and 'hearing', there must be movements in or of the air outside a human being, caused by impacts of bodies on one another and on the air itself. From these, the impulses entering someone's ears originate, but they are not yet sounds. They are merely movements, which become sounds only when they arrive at the human soul, after they have travelled through the medium of ears, blood, and brain. Furthermore, although no direct account of the soul's reaction is offered in the *Timaeus*, Ficino concludes that if sound itself consists of the impact made 'on the brain and blood', then Plato must apparently conceive of the impact of sound as affecting in some way the motions of the human soul. This is in fact the very foundation of the Platonic theory that music has the power to shape and condition the human body and soul.

The discussion of the sense of hearing and concordance in Ficino's *Compendium* rests on Plato's wider explanation of the phenomenon of circular

126 *Tim.* 67a–c, in Plato 2000, 60–61.

thrust.[127] Plato explained at *Tim.* 79e–80c that a moving object must push away whatever lies in its path; what is pushed away in turn pushes another, until the continuous process of collisions completes a circle and moves other matter into the place where the first initially was. The process of blood circulation and the process of hearing musical sound, then, follow the same archetypal laws of circular thrust. Ficino follows Plato's definition of hearing as a circular process which starts in the brain and ends in the region of the liver and uses the circular thrust of the circulation of the blood, spirit, and soul inside the human body. So when a human being hears musical sound, movement is transmitted from the brain to the liver and simultaneously, as a consequence of the law of circular thrust, from liver to brain.

In his *Compendium* Ficino uses the Timaean definition of sound as a point of departure. According to him the cause of sound is a movement in or of the air, caused by banging two objects against each other. To illustrate his point, Ficino explains that the effect of this bang in the air is comparable to the effect of throwing a stone into a pond:

> Natural philosophers teach that sound reaches the ear in the shape of a ring, which multiplies gradually into many circles, just as the circles produced by throwing a stone from a height into a pond are multiplied until they reach the bank. We, however, believe that a harmonious sound made up of low and high tones falls upon the ear as a single, rounded, but oval form.[128] In this, the eighth tone [i.e., octave in a scale], by means of the sharper end's joining to itself the breadth of the first tone, makes up a single tone out of itself and the first tone. And just as the eye sees an oval roundness as a single shape, although it is wider at one end and less wide at the other, so our hearing listens to a tone resulting from the fundamental and its octave, a tone which raises itself as a single tone, like an egg, from a full depth, as it were, to a sharp height, gradually and sweetly.[129]

127 *Tim.* 79e–80c, in Plato 2000, 73–75.

128 The oval form is used also in the discussion of sound and hearing in the letter "De rationibus musicae". For the edition of this letter, see Ficino 1973, 52; for the translation by Farndell, see Godwin 1993, 165. In *CiT* XXXII, 72^{v}, Ficino explicitly refers to his letter "De rationibus musicae", in which he has dealt with the subject of sound and the sense of hearing in further detail. For this letter, see also II.4.2.

129 *Tradunt physici sonum in orbicularem figuram multis gradatim amplificatam circulis ad aures pervenire, non aliter quam qui in stagno ex iactu lapidis ab alto circuli multiplicantur ad litus. Concentum vero ex gravibus acutisque conflatum, velut unam formam et hanc rotundam quidem, sed ovalem illabi auribus arbitramur. In qua quidem octava vox quasi per acutiorem verticem, vocis primae latitudinem sibi continuans, ex seipsa atque prima*

The simile of the stone in the pond in this quotation could be extracted from Augustine's *De musica* (*On Music*), as well as from the work of scholars of the Aristotelian school, which Ficino studied in his youth. Pennuto (2001, 102), for example, mentions Averroës and Albertus Magnus as possible sources for the simile. The simile crept into the commentary tradition as an example of *Tim.* 80a–b, a passage in which the generation and propagation of sound is dealt with in a scientific, as well as a metaphorical, way as a kind of circular movement.[130] But Ficino holds that neither the explanation of the propagation of sound given in the *Timaeus* nor the ones given by Augustine or Aristotelian scholars is completely satisfactory.

In this explanation, he slightly deviates from the traditional theory of sensation according to which the sense organs are of the same structure as the sense object.[131] With the remark that circular sound waves are transformed in the process of hearing into oval sound waves, Ficino argues first of all that sounds as the objects of hearing undergo transformation in order to make them compatible to the categories of perception of the hearing subject. Ficino uses this transformation by sense perception from circular to elliptical shapes in order to explain how knowledge of universals on the level of the rational soul is linked to knowledge of particulars on the level of the senses.[132] Thus, Ficino seems to transfer the classical Timaean explanation of the sense of seeing to the domain of hearing, with the ear functioning in this explanation in the same way as the eye.[133] Likewise, just as the circular shape of beams of light from the sun is reflected in the eye, from which it is projected into the soul in

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unam iam conflat vocem; atque sicut oculus ovalem rotunditatem tamquam unam videt figuram, quamvis hinc latam magis, inde minus, sic auditus vocem ex gravi octavaque resultantem haurit, tamquam unam ab amplo quodam profundo quasi in acutam sublimitatem ovi instar gradatim sese ac suaviter attollentem. Hinc fieri arbitramur, ut et natura eiusmodi, quasi figuram audiendi instrumento tribuerit, similemque instrumento loquendi, et ars praeterea similem, quoad fieri potuit, musicis instrumentis. Ea certe consonantiora sunt, quae ovali figurae propinquiora. CiT XXXI, 71[r].

130 Ficino may have borrowed this simile from Augustine, who used it the passage of his *De musica* that Ficino copied in his *Theologia Platonica*. See *TP* XII.vi.1–11, in Ficino 2001–2006, 4 (2004): 77–91.

131 Allen 1994, 99.

132 The transformation of a round object into an oval one in the sense of seeing is explained in Ficino's letter "De rationibus musicae". See Ficino 1973, 52; Godwin 1993, 165.

133 Ficino discusses this theory of the sense of seeing at *CiT* ("Distinctiones") XXX, 84[v]. For a German translation of this chapter, see Albertini 1997, 285–291.

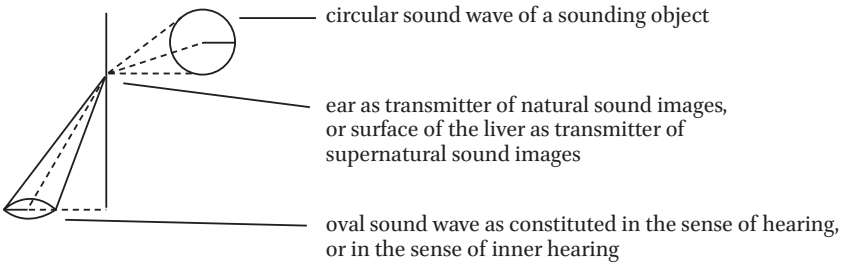
circular sound wave of a sounding object
ear as transmitter of natural sound images,
or surface of the liver as transmitter of
supernatural sound images
oval sound wave as constituted in the sense of hearing,
or in the sense of inner hearing

FIGURE 3.4 *How the perfect circular form of a musical sound wave is perceived by the sense of hearing in the form of an oval sound image.*

an elliptical shape, so the circular shape of sound waves is reflected in the ear, from which it is projected into the soul in an oval shape (fig. 3.4).[134]

If we analyse figure 3.4 in epistemological terms, the circular sound waves represent universal knowledge of the harmonic proportions of the cosmos, and the oval mirrored sound images (echoes) represent the way in which these universals are transformed by way of hearing into particular objects in the human soul.[135] As soon as the sound waves arrive through hearing in the human soul, they travel to the internal sense of the 'cogitative power', in which the judging numbers are placed.[136] This internal sense mediates between knowledge from sense perception and rational knowledge. As noted above (in the discussion of the triangular figure representing the epistemological harmonic structure of the cognitive faculties in the human soul, fig. 3.3), the cogitative power is situated on the intermediary level between imagination and reason, where it performs the task of abstracting the archetypal harmonic proportions from the audible numbers as they occur in the hearing of earthly music.

In Ficino's model of the sense of hearing, the section on concordance at *Tim.* 80a–b also plays an important role. This section is embedded in a discussion of the way in which movement, in general and in various different manifestations, can be understood without postulating the existence of empty space. As a special example of movement, the *Timaeus* mentions musical sounds or tones (*phthongoi*), characterizing them as swift or slow and explaining once

134 Figure 3.4 is based on the geometric figure explaining optics at *Tim.* 46a–c, in Plato 1937, 155; and 2000, 34. For this image, see also Otto 1991, 309.

135 *Tim.* 46a–c, in Plato 2000, 33–34. For Ficino's use of images in the context of his theory of the visual arts, see, e.g., Ficino 1989a, 117–167.

136 In Ficino's thought about the human cognitive faculties, common sense is situated on the level of 'opinion', that is, on an intermediary level between the senses and reason. See *CiT* XXXV, 74[r].

again that those which are swift 'appear' high-pitched, and those that are slow appear low-pitched.[137] Ficino adopts this definition almost literally:

> A 'phthongos', that is, [musical] sound, is deemed appropriate for melodies when by means of it someone can easily sing both a lower and a higher note, so that the result will not be so low and relaxed as to be like silence nor so high and intense that it makes a commotion.[138]

It is not clear whether the *phthongoi* at *Tim.* 67b are to be understood as movements external to the human being that are transmitted through the air from musical instruments or as sounds that occur inside the human body; hence, Ficino must choose between these alternative interpretations. In order to do so, he first explains that fast and slow tones, caused by, respectively, faster and slower movements, are dissonant if their movements do not correspond to each other and are consonant if their movements are in concordance. The correspondence between the movements of high and low tones implies that a fast, high tone will become slower when it reaches its final destination. In changing its speed, it becomes equal to the slow, low tone, which because of its lower speed reaches the final destination later than a fast, high tone. Ficino's interpretation, however, does not present a clear choice between the two possible readings of this passage. He seems to adhere instead to a combined interpretation in which the movements of the musical sounds are transmitted through the air as well as through the human body.

Although air is presented as the medium of sound, this does not exclude the possibility that Ficino sees musical concordance as arising somehow inside the human being. The musical sounds are said to travel in disharmony or in concord because of the dissimilarity or similarity of the movements inside the human being, and this can hardly be true unless the sounds themselves are somehow similar to those internal movements. The definition of *phthongos*, in fact, seems to be applicable to all phases of the circular movement of sound, from its external source to its destination inside the human body and soul, but the phenomena of disharmony and concord are exclusively internal.

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137 In the mathematical science of music the term *phthongos* has a very specific meaning. It refers to a special relationship which is manifested in perfect octaves (2:1), fifths (2:3), and fourths (3:4), in combinations of the octave with any other *phthongoi*, and nowhere else.

138 *Phthongum, id est sonum, melodiis aptum vocant, quo et graviorem et acutiorem facile quis aedere possit, ut neque tam profundus remissusque sit, ut sit silentio similis; neque tam altus et intentus, ut perstrepat. CiT* XXX, 69^{v}.

Ficino follows Plato in his explanation of the similarity of the movements of a swifter and a slower *phthongos*. Swifter *phthongoi* arrive earlier at their destination, but their movement fades, and as it fades, slower sounds catch up to them. When the slower *phthongoi* catch up to the previously faster ones, they all blend together into a single experience composed of high-pitched and low-pitched sound waves.[139] Ficino reads the present passage as if the term *phthongos* is similar to the music-theoretical term *concentus*.[140] Traditionally *concentus* was defined in terms of the successive two tones of a melodic interval in monodic music. But in the late fifteenth century the term *concentus* was extended to mean the impression made on human beings when intervals of octaves (2:1), fifths (3:2), thirds (5:4), and sixths (5:3) were played or sung simultaneously as a harmonic interval in a chord rather than in a melody.[141] Hence, by the terms *phthongos* and *concentus* Ficino presumably refers to the notes of these harmonic intervals, blended together in the perception of them: they are grasped by the sense of hearing as a single, unified phenomenon that has an exceptional influence on a human being. Pairs of notes that are discordant with one another, by contrast, do not blend in this way and are perceived as two distinct tones.

In Ficino's *Compendium*, the concordance of a pair of notes not only has an aesthetic value but—given the Platonic theory that music is an imitative art—also an ethical one. He interprets the passage at *Tim.* 47d (that the sense of hearing "gives pleasure to the unintelligent but affords delight to the wise, because of its representation of the divine harmony in mortal movements") as if Plato were talking about the imitation of the music of the spheres in earthly music. In Ficino's opinion this is more than only the perception of isolated Pythagorean concordances, that is, two concordant tones which constitute a *concentus* in a music-theoretical sense.[142] In Ficino's interpretation real music is regarded as imitation, that is, as more than the speculative Pythagorean

139 *Tim.* 80a–b, in Plato 2000, 74–75.

140 Just like the concept of *phthongos* from which they derive, the terms *concentus, consonantia*, and *symphonia* in Ficino's *Compendium* all refer to musically acceptable pairs of notes in the numerical framework of the Pythagorean tuning that was prevalent in the fifteenth century. In my opinion Ficino uses these technical terms rather loosely. Having said that, generally speaking one could say that *phthongos* refers to a musical sound in the context of a music-theoretical explanation, whereas *concentus* and *consonantia* are often used for melodic intervals, harmonic intervals, and chords used in fifteenth-century music, and finally *symphonia* often appears in more general discussions of cosmic harmony.

141 For Ficino's appreciation of the interval of the third and sixth, his choice of just intonation, and his ideas about harmonic intervals, see 2.4.2.

142 *Tim.* 47d, corresponding to *CiT* XXXXII, 77^{v}.

intervals of the octave, fifth, and fourth without any melodic, harmonic, and symbolic context. From the perspective of a musician, Ficino is also interested in how heavenly music can be imitated in earthly music in order to further otherworldly experiences of a musical nature. Therefore, his interpretation of the contribution made by 'wise' listeners during the process of making music or listening to music is orientated to the musical practice of the late fifteenth century. In order to understand his vision of music's ethical power to affect man's soul, I will now reconstruct in detail what it meant to a fifteenth-century wise man to say that the sense of hearing is given "in order to enable us on the basis of audible harmony to bring the movements of our soul, too, into a harmonious order".[143]

Onians (1954, 65ff.) complained that the idea expressed at *Tim.* 67a–c that the movement produced inside us extends from the head to the liver has not been satisfactorily explained. He argued that it may well be a relic of the belief that sound was breathed in through the ears, and then this breath travelled through the chest and subsequently reached the liver; his opinion is supported by ancient Greek sources that say that painful news reached the liver. And if one replaces 'breath' with 'spirit' in Onians's hypothesis, this is exactly the line of thought encountered in Ficino's interpretation of this notoriously difficult passage, as I will explain now.

In his view of the role of spirits in the intertwined processes of blood circulation and the sense of hearing, Ficino combines a Neoplatonic concept of spirit with a Stoic one.[144] The Stoics rejected the idea that the soul is an incorporeal entity. Instead, they argued that it must be corporeal and subject to the laws of nature. In addition, they held that all mental states and acts were states of the corporeal soul. The soul was believed to be a hot, fiery breath (*pneuma* or spirit) that infused the physical body. As a highly sensitive substance, spirit pervades the body, establishing a mechanism able to detect sensory information and transmit that information to the central, commanding portion of the soul in the chest. The information is then processed and experienced.

Ficino interprets the Timaean doctrine of the three principal cavities of human bodies and their accompanying souls (at *Tim.* 70d–72b) according to his musical *spiritus* theory.[145] The soul of each cavity has a primary life function and dominant organ, which exerts its effects through channels containing a

143 *CiT* XXXXII, 77^{v}. Quoted above in 3.4.1.

144 See Verbeke 1945, 511–544; and Walker 1985, 287ff.

145 For a detailed explanation of the relationship between *spiritus* and music, see Walker 1985, 131–150.

particular fluid or spirit.[146] Given principle 5 in Ficino's philosophy—the progression of being is continuous—body is necessarily connected to soul through an intermediary kind of being. Hence, the human body and soul are connected through spirit in precisely the same way as the cosmic body and World-Soul are connected through the World-Spirit.

As Walker (1958, 3) explains, Ficino's subdivides the human spirit into natural, vital, and animal spirits, which are located, respectively, in the belly (corresponding to Plato's lower part of the irrational soul), heart (corresponding to Plato's higher part of the irrational soul), and head (corresponding to Plato's rational soul). According to Ficino, man's "contemplation is usually as good as the sense to which it is subordinate; the sense is as good as the spirit; the spirit is as good as both the blood and those three forces which we mentioned—that is, the natural, vital, and animal, by which, through which, and in which the spirits themselves are conceived, born, and nourished".[147]

In chapter XXX of the "Distinctiones", Ficino explains that the human spirit is the first instrument of the soul, an instrument of imagination and sensation, the link between body and soul.[148] Ficino takes the view that vital spirit, after being generated by the heat of the heart from the natural spirit in the more subtle blood, flies to the brain and transforms into animal spirit. Within the brain the soul uses it continually for the exercise of the interior, as well as the exterior, senses.

As a starting point for his discussion of the role of spirits in everyday and inner hearing, Ficino first of all couples the four elements and their qualities with the four senses. By this means, the senses become an expression of the complicated fourfold harmonic structure of the macrocosm. Subsequently, in his letter "De rationibus musicae" ("On Musical Ratios"), which must be read as an appendix to the *Compendium*, he explains the sense of hearing in terms of the substance of what is heard:[149]

> For the moment, I make but passing mention of the fact that the followers of Plato, in their scheme of the senses, match sight with fire, hearing with air, smell with a vapour blended from air and water, taste with water,

146 *CiT* ("Distinctiones") LXXI, 88^{v}–89^{r}.

147 *Itaque talis plurimum ferme contemplatio est, quale sensus ipsius obsequium; talis autem sensus, qualis et spiritus; spiritus vero talis, qualis et sanguis et tres illae vires quas diximus: naturalis scilicet, vitalis et animalis, a quibus, per quas, in quibus spiritus ipsi concipiuntur, nascuntur atque foventur. De vita* 1.2, in Ficino 1989, 110–111 (translation modified).

148 *CiT* ("Distinctiones") XXX, 84^{v}.

149 Walker 1958, 7.

> and touch with earth; and they think that wondrous pleasure appears when the proportions of something perceptible through its qualities and degrees match up and harmonize at every point with the proportions which constitute the nature of sense and spirit. . . . The followers of Plato locate in the constitution of hearing one degree of earth; also, one of water, but with a third more; one and a half degrees of fire; and lastly, two of air. Hence, they consider that the power to arise most strongly is that of the ratios 3:4, 2:3, and 2:1.[150]

Thus, Ficino defines both the constitution of the sense of hearing and the constitution of musical sounds in terms of the three numerical ratios (2:1, 3:2, 4:3) which are the essence of the harmonic design of the World-Soul.[151] Because he considers hearing as well as musical sounds to be made in the literal image and likeness of God, music is equipped to function as the key to the universe, leading ultimately to both knowledge of the cosmos and man's reunion with his Creator. The divine Architect, in turn, coincides with the archetypal One who is the source of number and proportional musical sound. Yet the notion underlying Ficino's belief in the power of consonant sounds, as we will see, potentially extends to all music.

Ficino declares that music in a broad sense can, and indeed should, reflect in an essential manner the very nature of the universe, of which man and music are integral parts. To the question of why music, more than anything else, is capable of influencing the human being, Ficino gives a long and detailed answer:

> The response to this would be that musical consonance occurs in the element which is the mean of all [i.e., air] and reaches the ears through motion—in fact circular motion—so that it should not be surprising that it fits with the soul, which is both the mean of things and the origin of circular motion. Add to this the fact that musical sound, more than

150 *Mitto in presentia quod Platonici in sensibus disponendis igni visum, auditum aëri, olfactum vapori ex aëre et aqua mixto, gustum aque, terre tactum accommodant. Atque ubi proportio rei sensibilis per qualitates gradusque suos proportioni qua sensus ipsius spiritusque complexio constat undique quadrat et consonat, ibi putant voluptatem mirificam provenire. . . . Platonici in ipsa auditus complexione unum terre collocant gradum, aque vero unum quoque, sed tertiam insuper partem, ignis preterea unum atque dimidium, aëris denique duos. Hinc ergo vim proportionis sexquitertie, sexquialtere, duple oriri maxime arbitrantur*. "De rationibus musicae" (Ficino 1973, 54; Godwin 1993, 167).

151 Ficino further explores this theory of the five senses at *CiT* ("Distinctiones") LVIIII–LXIII, 87^{v}–88^{r}.

> anything else perceived by the senses, as if alive, conveys the desire, sense, and thought of the singer's or player's soul to the listeners' spirits; thus, it pre-eminently agrees with the spirit. Furthermore, as regards sight, although visual impressions are in a way pure, they lack the effectiveness of motion and are usually perceived only as an image, devoid of reality; normally, therefore, they move the spirit only slightly. Smell, taste, and touch are entirely material and titillate the sense organs rather than penetrate the depths of the spirit. But harmonious sound by the movement of the air moves the body; by purified air it excites the aerial spirit which is the bond of body and soul; it works on the mind; finally, by the very movement of the subtle air, it penetrates strongly; by its harmonization it flows smoothly; by the conformity of this quality it enfolds us in a wonderful pleasure; by its nature, both spiritual and material, it at once seizes the whole man and claims him as its own.[152]

Ficino's understanding of the sense of hearing assumes the religious, philosophical, astrological, and magical beliefs analysed above. Within these beliefs, the 'spiritual power' that lies hidden in privileged sounds in earthly music constitutes the very foundation of his model of the sense of hearing. In order to understand the spiritual communication that takes place in the act of hearing, let's reconstruct this model here.

According to Ficino, man as a microcosm, just like the macrocosm, consists of a body and a soul. The human body is formed from food and hence from the four elements. This inert matter is vivified by the immortal rational soul, which is fully incorporeal. Following *Tim.* 69a–72d, in addition to his immortal soul,

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152 *Responderetur ad haec musicam consonantiam in elemento fieri omnium medio; perque motum, et hunc quidem orbicularem ad aures provenire, ut non mirum sit eam animae convenire tum mediae rerum, tum motionis principio in circuitu revolubili. Adde quod concentus potissimum inter illa quae sentiuntur quasi animatus affectum sensuumque cogitationem animae sive canentis sive sonantis perfert in animos audientes. Ideoque in primis cum animo congruit. Praeterea quae ad visum quidem spectant, etsi pura quodammodo sunt, tamen absque motionis efficacia et per imaginem solam absque rei natura saepius apprehenduntur; ideo parum admodum movere animos solent. Quae vero ad olfactum, gustum, tactum, quasi valde materialia potius instrumenta sensuum titillant, quam animi intima penetrent. Concentus autem per aeream naturam in motu positam movet corpus; per purificatum aerem, concitat spiritum aereum animae corporisque nodum; per affectum, afficit sensum simul et animum; per significationem, agit in mentem. Denique per ipsum subtilis aeris motum, penetrat vehementer; per contemperationem, lambit suaviter; per conformem qualitatem, mira quadam voluptate perfundit; per naturam tam spiritalem quam materialem, totum simul rapit et sibi vendicat hominem. CiT* XXVIIII, 69^{r}–69^{v}.

man's mortal soul consists of three parts: the spirited parts in the brain and the heart and the appetitive part in the belly.[153] Ficino explains the wonderful harmony of the two extremes of the human body and soul by transferring his theory of cosmic sympathetic vibration to the domain of the human being.[154] Just as the translucent cosmic Spirit connects the cosmic body with the World-Soul, the human spirit—with its centre in the spirited mortal part of the soul in the heart—connects the human body and soul. Furthermore, through cosmic sympathetic vibration, the cosmic Spirit is capable of directly influencing the human spirit. Both kinds of spirits can be represented by a string on a musical instrument.[155] The string representing the human spirit extends from the immaterial realm of God to the material realm of the human body and participates in both extremes (fig. 3.5).

In this figure man is depicted as a set of concentric circles which are connected to spheres in the macrocosm: the highest sphere, the 'Empyrean Heaven of the Microcosm', marked on the left, connects with man's immortal rational soul and the head (*Tim.* 42d–e); the middle sphere, the 'Ethereal Heaven of the Microcosm', connects with man's higher irrational soul in the thorax (*Tim.* 70a–70d); and the lowest sphere, the 'Elemental Heaven', connects with man's lower irrational soul in the belly (*Tim.* 70d–71c).[156] In addition, the spheres of man (*musica humana*) connect with different kinds of music, from the highest inaudible and purely intellectual music (*musica mundana*) through the lowest rhythmical music used in eurhythmics or dance (*musica instrumentalis*):

> Music consists first in calculation, second in fantasy, third in words: melody follows this, the movement of fingers in sound follows melody, and the motions of the whole body in gymnastics or dance follows sound.[157] We therefore see that music is led by degrees from the soul to all the members of the body. . . . Because, therefore, there is such a strong communication between the music of the soul and of the body, what wonder is it that the body as well as the soul should be tempered by the same man? Finally, anyone who has learned from the Pythagoreans, the Platonists, Hermes Trismegistus, and Aristoxenus that the Soul as well as the Body of the world and of each living creature [is held] to consist of

153 *CiT* ("Distinctiones") LXV–LXX, 88r–88v.

154 For Ficino's account of cosmic sympathetic vibration, see 2.5.2.

155 See *TP* IV.ii.9, in Ficino 2001–2006, I (2001): 308–311. In this passage Ficino describes the soul in terms of a triple circle.

156 *CiT* ("Distinctiones") LXXI, 88v–89r.

157 *Tim.* 88c, in Plato 2000, 84.

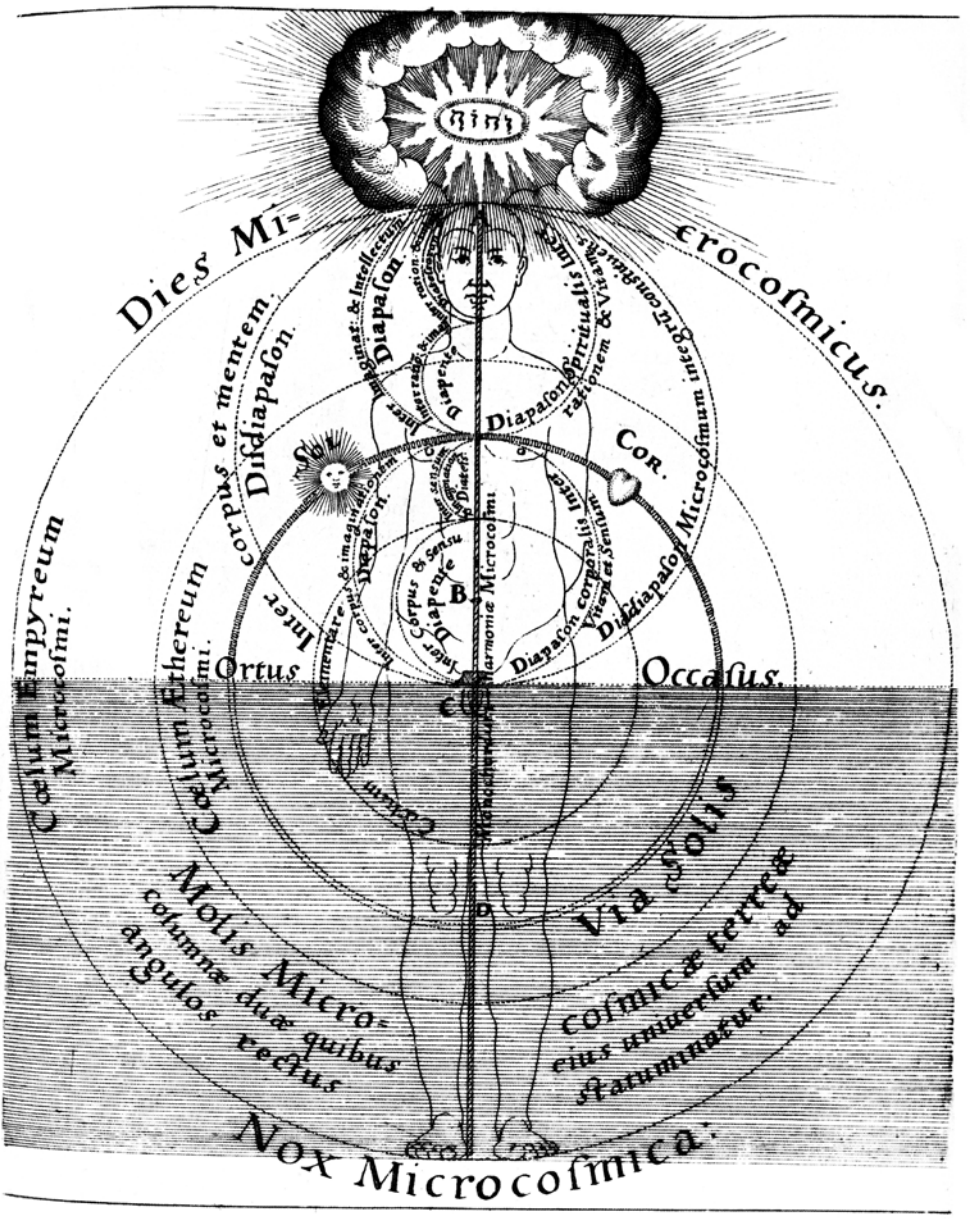

FIGURE 3.5 *The harmony between the extremes of body and soul brought about by the ethereal body is represented here by a string. From Robert Fludd,* Utriusque Cosmi, *II, a, 1, 275.*

> musical proportions, or who has learned from the sacred writings of the Hebrews that God has ordered everything according to number, weight, and measure,[158] will not be surprised that nearly all living creatures are made captive by harmony.[159]

To reach an appreciation of the full significance of Ficino's ideas of earthly music as an echo of divine harmony, we must now return to his interpretation of *Tim.* 70d–72b, concerning the anatomy of the human body. As we have seen above, in the Timaean anatomy of the animated part of the human body, the lowest part of the irrational soul is housed in the belly, where it has a function in the processes of digestion and reproduction:

> However, [Plato demonstrates] that the irrational soul somehow or other resides in the members of the body and that the part of it which governs courage and wrath is entrusted to the heart, while the part that is dedicated to desire is entrusted to the liver.[160]

The two parts of the irrational soul are intermingled with corporeal matter and involved in human passions and emotions, whereas the rational soul is immaterial and involved in purely cognitive functions. The lower part of the irrational soul is kept as far as possible from the head, the seat of thought and deliberation. It has no understanding of intellect and reason, and even when it gains some awareness of such things, it is not in its nature to discern them.[161] The lower part of the irrational soul is influenced, instead, by images and phantasms. By making the liver dense and smooth and shiny, the gods charged in the *Timaeus* with the creation of man enabled this organ to serve as a mirror which reflects the power of thoughts, transmitted from the mind, receiving and emitting these thoughts as 'images'.[162]

In Ficino's *Compendium*, this particular passage on the anatomy of the different parts of the human body provides a clue to the manner in which music

158 Wisdom 11:20.

159 Letter 92, "De Musica", in Ficino 1576 (1962) 1: 650–651; translation modified from Ficino 1975–2009, 1 (1975): 143.

160 *Irrationalem vero in membris quodammodo residere, et partem quidem eius audaciae et iracundiae compotem cordi, partem vero concupiscentiae deditam, iecori commendatam. CiT* XXXXV, 79r.

161 *Tim.* 70d–71b, in Plato 2000, 64–65.

162 For an introduction to ancient theories about the liver and the belly, see Onians 1954, 84–90.

in his explanation of the sense of hearing presents itself to the part of the soul responsible for perception and emotion. Ficino understands hearing as a movement that is transmitted between the head and the liver, and the perceptive irrational soul can act as a receptor for anything that is reflected from the liver's smooth surface.[163] Although in chapter XXXXV of his *Compendium* Ficino does not openly adhere to this Pythagorean doctrine, he deals with it in detail:

> In fact, concerning the liver itself you have to note the remarkable opinion of the Pythagoreans: namely, that this organ, made of a solid hardness and an equally shining softness, is harmoniously tuned in such a way that it receives the images of things in the manner of a mirror and easily reflects them.[164]

In his *Compendium*, however, Ficino does not elaborate on the way different kinds of images are received and emitted by the liver. In order to find out precisely how this takes place, we must extrapolate from a discussion of the concept of *idolum* in his interpretation of Plato's *Sophist*.[165] In discussing the way in which the human imagination can be moved by distant or even absent objects, Ficino makes the following remark:

> I set aside now the problem of how some things are affected by others by way of the efflux and the conflux of the *idola*, and why imaginations may be moved through these *idola* by absent things almost as though they were approaching us, and dreams occur.[166]

In this passage Ficino distinguishes clearly between two kinds of *idola* which can be equated with the images which are received and emitted through the liver: images sent out in the act of perception and images that are somehow

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163 Ficino returns to his interpretation of *Tim.* 69d at *CiT* ("Distinctiones") LXVII, 88^{v}.

164 *Verum de hoc ipso iecore miram Pythagoricorum notabis opinionem, videlicet id membrum ex certa soliditate et clara pariter lenitate, sic esse contemperatum, ut speculi modo imagines rerum accipiat, facile admodum atque reddat. CiT* XXXXV, 79^{r}.

165 For a discussion on the function of *idola* in Ficino's philosophy, see Ficino 1989a, 168–204; and Kristeller 1943, 371–372. Sense perception and understanding were sometimes conceptualized by Ficino in terms of sensible and intelligible *species*. See Spruit 1995, 37–38.

166 *Mitto nunc quomodo per effluxum confluxumque idolorum alia afficiantur ab aliis, et qua ratione imaginationes per haec ab absentibus propemodum propinquantibus moveantur, insomniaque contingant. Icastes* XXXXVI, [265E8]; translation modified from Ficino 1989a, 276–267.

reflected inside the human body during the acts of imagination and dreaming.[167] As I will discuss below at 3.5.2., a musician-healer can induce dreams by playing music in the Hypodorian mode. If the present passage in Ficino's *Sophist* commentary is a reliable guide to Ficino's own ideas about the perception of music, then the movements of hearing impinge on the liver as *idola* of the first kind (which are sent out in the act of perception) and are reflected from it to the lower soul as *idola* of the second kind.

Because Ficino did not elucidate the distinction between the two kinds of sound images, we will reconstruct it for the special case of musical hearing. A perceived *idolum* is the impression made by one thing on another through pressure or impact, as, for example, the impression of a stone thrown into the water of a pond.[168] Hearing was defined by Ficino as a movement or a set of movements analogous to the waves caused by dropping a stone into a pond, whose musical characteristics are created by the speeds of these movements and the relations between them. In the process of hearing music, it is then the pattern formed by this system of movements that impresses itself on the liver as an *idolum*. What is reflected from the liver is no longer an *idolum* of the first kind but an *idolum* of the second kind. This latter category, which carries a powerful emotive charge, is conceived of by Ficino as a kind of musical mirror image, or echo.

Ficino does not explain precisely how the transformation of perceived sound images into musical mirror images occurs. Presumably, in his conception of the sense of hearing, the shift takes place through the spirit, the intermediary entity between the human body and soul, which facilitates communication between the different corporeal and incorporeal substances of which man is created. The incorporeal-corporeal and very active spirit, "which is defined by doctors as a vapour of blood—pure, subtle, hot, and clear", can intermingle with earthly matter and bring about changes in its form.[169] Moreover, spirit is an essential component of the air of which musical sound is composed.

From this passage it can be inferred that the human spirit is able to carry musical sound images, in the form of musical spirit, through the blood. Thus, the structural similarity between musical and human spirit accounts for the circular transportation and the accompanying transformation from *idola* as

167 See Ficino 1989a, 199–200.

168 For the use of this simile in Ficino's philosophy of music, see *CiT* XXXI, 71r.

169 *Instrumentum eiusmodi spiritus ipse est, qui apud medicos vapor quidam sanguinis purus, subtilis, calidus et lucidus definitur. De vita* I.2, in Ficino 1989, 110–111.

simple sound images into *idola* as musical mirror images.[170] In Ficino's circular model of the sense of hearing, the arteries between the head and the liver are responsible for bringing the vital spirits from the heart to the base of the brain, where they are transformed into extremely rarefied animal spirits. These spirits are the instruments through which the brain receives the external sense impressions, which when they arrive at the brain are transformed from simple sound images carried by vital spirits into musical mirror images carried by animal spirits.[171] What we are reading here in Ficino's *Compendium* is a corrective to Palisca's (2006, 186) claim that Ficino "did not recognize the common threefold division of the spirits into natural, vital, and animal".

The representational character of these musical mirror images in Ficino's explanation of the sense of hearing matches the most essential feature of his Neoplatonic theory of music: that it is all essentially imitation. In line with this theory of musical imitation, Ficino argues that when we perceive sequences of sound as music, we perceive them not in their own character as quantifiable movements or impulses (as in the Pythagorean ratios and proportions) but as imitations of other things, analogous to visual pictures; and these imitations influence the faculty of the imagination.[172] Likewise, in Ficino's *Compendium*, the movements constitutive of hearing are reflected from the liver to the lower part of the irrational soul as musical mirror images of something else in the musical universe. Thus, whenever the movements in music (those producing the incoming sound images from which the processed musical images originate) are derived from harmonious earthly music, containing *concentus*, they will cause positive emotions and thoughts.

Ficino's theory of music's ethical power to affect man's soul by means of imitation is applicable to all levels of the human soul's ascent through the spheres (fig. 3.3). In the same way that a normal listener is able to enjoy music through his imagination and reason, a wise listener on a higher rung of the ladder can move through his will and intellect beyond the mere enjoyment of

170 As is evident from several chapters in the "Distinctiones", Ficino was aware of the concept of 'nerves', but the annotations found in these chapters are never fully integrated into his explanation of blood circulation and sense perception. For Ficino's ideas about nerves, see *CiT* LXXIII, 89^{r}; LXXVIIII, 89^{v}; and LXXXVIII, 91^{r}.

171 In Galen's theory these spirits are stored in the brain cavity and from there enter the nerves, which act as channels for their operation throughout the body. In Ficino's explanation it seems to be the case that spirits that are charged with the function of transmitting 'spiritual messages' use the blood circulation instead of the nervous system.

172 For Ficino's ideas about phantoms of imagination, see Kristeller 1943, 360–364.

musical images to a higher delight in the imitation of the divine harmony that is present in the heavenly spheres. The music which a wise listener appreciates is still conceived of as imitation, but its object is no longer a human emotion or moral character. The highest level of the triangle, on the level of the will and the intellect, aims at the highest form of music—the harmony of the spheres itself—which lies outside our mortal experience. This kind of music can be fully grasped only in thought and through the use of one's inner sense of hearing.

Ficino follows Plato at *Tim.* 71d in explaining that when the lower part of the irrational soul is in a state of enjoyment, induced by pleasing sound images, it can pass its nights peacefully, and though it has no share in the functioning of the intellect, it can exercise, in sleep, the power of divination. In the *Timaeus* this power is given to the irrational soul so that, despite its incapacity for rational thought, even the worst part of the human being may come into contact with truth.[173] Following Plato, Ficino does not confine the occasions on which this capacity can be exercised to sleep alone. He explains that divine inspiration can occur only when the rational human mind is disengaged; this may be in sleep or as the result of a psychosomatic disorder (e.g., melancholy) or through the frenzy of ecstatic possession (*furor*).[174] When the rational human mind is disengaged, images are no longer received through the hearing of sound in the external world but are received through the magical operations of angels and demons, who are able to project images directly from a transcendental world onto the surface of a human liver:

> In this very mirror the demons and the gods fashion images of future events—whenever, that is, the spirit is at rest, and images that come from outside are not painted there.[175]

Ficino exploits these links between the magical influence of music on the human soul and divine inspiration for different purposes in his other works. In his commentary on the *Phaedrus*, for example, he elaborates the doctrine that demons can move the human imagination and sense directly through music:

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173 *Tim.* 71d–e, in Plato 2000, 65.

174 The literature on Ficino's theory of melancholy is vast, but the classical treatment of the subject in Klibanksy, Panofsky, and Saxl 1964 is still the point of reference for many later studies, such as Kümmel 1977, 288–290; and Amman 1998.

175 *In hoc ipso speculo daemones superique futurorum effingunt imagines, quotiens pacato prorsus animo aliunde illic imagines non pinguntur. CiT* XXXXV, 79^{r}.

> Although a demon may indeed frequently move the imagination, which is the universal sense, with its imagination and can thus move it through the sight and hearing alike, nevertheless he moves Socrates through the hearing. . . . But how? Either the demon takes the concept to be imagined and effectively extends it to or generates it in the inmost hearing; or the demon himself in his own spiritual body forms the sound by a certain marvellous motion, and with the same motion strikes as a sound upon the spiritual body of Socrates. When this vibrates, Socrates's inmost hearing is excited to the same.[176]

Demons, then, play an important role in Ficino's musical magic, as they are seen as beings pre-eminently gifted in the subtleties of mathematics. They enable the transmission of musical into human spirit, and in this they exemplify how in the musical universe cosmic vibrations can be transmitted from one moving corporeal or incorporeal body to another. Thus, Ficino maintains that during the experience of an ascent through the spheres, a human being can be captivated by music through the interference of demons. Just as in prophetic dreams man is able dimly to perceive the images projected by demons on his liver, during similar experiences echoes of an invisible world can be perceived. But the images gathered through the power of imagination and the power of will—that is, the opposites of the rational and intellectual mind—are not understandable themselves, because they are acquired in a dream or an ecstatic state. Therefore, Ficino claims that the musical images received in this way must be submitted to rational and intellectual analysis if their significance is to be recovered. Apparently, the human soul's ascent through the spheres corresponds to the dialectical process of acquiring musical images through the imagination and will and then interpreting them through reason and intellect. In this, Ficino reads *Tim.* 71e–72a through the lens of the myth of Er.

Although Ficino's *Compendium* provides no explicit account of the phenomenon, there is a mode of rational analysis through which the significance of musical images can be revealed: the science of the four mathematical disci-

176 *Demon profecto cum imaginatione sepius imaginationem moveat, que sensus est universus ideoque possit ita movere per visum ut per auditum, Socratem . . . quasi per auditum movet. Sed quomodo? Sane vel conceptum imaginabilem efficaciter ad intimum propagat auditum, vel format ipse demon in suo corpore spiritali vocem motu quodam miro eodemque motu pulsat corpus Socratis spiritale* (*quasi voce quadem*)*, quo quidem vibrato excitatur ad idem et auditus Socratis intimus. Commentary on the Phaedrus*, Summae III, chap. 11 [242B], in Ficino 1981, 138–141.

plines analysed earlier at 2.4. According to Ficino, the benefits of music for the wise listener appear to arise in the presence of earthly music itself, in the act of listening, but not in the detached contemplation of mathematical theorems in the silence of private study. As the foundation of this thesis, he explains in detail the way in which music experienced through musical mirror images in the irrational parts of the soul can also be received and appreciated by the rational soul.

According to Ficino, the reception and appreciation of music in the rational soul take place during the second phase of the cyclic process of hearing. The movement that constitutes hearing is completed through a return of the movement, via the liver, to its origins in the head. The discussion of the demonic influence on the liver during a state of spiritual enlightenment indicates that the work of interpretation follows upon the admittance of divine inspiration, and that what the wise interpreter subjects to rational analysis in the dialectical process of obtaining harmonic knowledge is something already present in the musical mirror images reflected from the lower part of the irrational soul.

To conclude this analysis of how music's ethical power can affect different parts of man's body and soul, I will summarize its main results. Hearing, for Ficino, is a circular movement from head to liver and vice versa, during which sound images are transferred from the liver to the lower part of the irrational soul, and from there back to the rational soul in the head in the form of responses made by the lower soul to the arousal of these images within it. In the transmission of these mimetic musical images, demons and angels play an essential role. In moments of musical ecstasy, human reason and intellect are alerted through spiritual and demonic magic to the presence of something that calls for interpretation. But because the mimetic musical images retain the physical form of harmonious movement during the process of hearing, the rational soul is presented, in the same event, with materials derived from the framework provided by the four mathematical disciplines, in which it can find imitations of the divine harmony of the planetary spheres. The wisdom of listeners on a higher rung of the ladder consists in their understanding of the four mathematical disciplines. Their interpretation of the irrational soul's blurred mimetic musical images, therefore, is given, obviously, in terms of the harmonic design by which God created the planetary circles, a design of which they possess privileged, esoteric knowledge.

Because his ingenious model of sound and hearing is an integral part of the construction of Ficino's Neoplatonic theory of music's power to shape and condition the human body and soul, we are now able to analyse that theory in further detail.

3.5 Music's Power to Shape and Condition the Human Body and Soul

3.5.1 *Music as Medicine*

In a famous and often-quoted letter about music, Ficino explains that physicians are able to cure the body, musicians to cure the spirit, and theologians to cure the soul.[177] I would contend, however, that in the theory of *musica humana* in his *Compendium* these levels are intertwined and, hence, that music functions as an omnipotent instrument for healing body, spirit, and soul.[178] In this text, he deals with music as useful for medical, epistemological, religious, astrological, and magical purposes.[179] These five ultimately converge into the one purpose of purifying the human body and soul. Purifying can best be understood as harmonizing: the more harmonic the relationship between body and soul and their constituent parts, the healthier man will be.[180]

In his theory of cosmic harmony, Ficino conceives of health as a form of harmony and of disease as a temporary lack or disturbance of harmony. Just as the cosmic body and soul are a unity, the human soul and body are a unity, and all diseases are therefore conceived as psychosomatic in nature. Either the body has a negative effect on the soul, or the other way round. In the first case an illness may be caused by a disorder of the natural balance of the bodily humours, which in his theory of musical healing provide the most elemental explanation for physiological and psychological change.[181]

David, Hermes Trismegistus, Orpheus, Pythagoras, and Plato, who all knew the archetypal harmonic laws of the cosmos, had been able to choose fitting music as a healing medicine.[182] Imitating them, Ficino does likewise, as a

177 Ficino 1576 (1962), 1: 609; translated in Ficino 1975–2009, 1 (1975): 39–40. For the connection between medicine, magic, and astrology in Renaissance and early modern culture, see Müller-Jahncke 1985.

178 For an introduction to Pythagorean medicine, see Gabriele 1999. For the Platonic mind-body relationship and its consequences for a theory of mental and physical health, see Robinson 2000.

179 For the original ideas on the subject of 'harmonizing' eurhythmics in Plato's *Timaeus*, see Joubaud 1991, 227–231.

180 For an introduction to the concept of temperance in Renaissance medicine, see Siraisi 1990, 85–114.

181 *De vita* I.iii, in Ficino 1989, 112–113.

182 Ficino tells the famous biblical story of the curative power of David's harp on the madness of King Saul (1 Samuel 16:23) in his Letter 92, "De Musica"; see Ficino 1576 (1962), 1: 651; 1975–2009, 1 (1975): 141–144. He also mentions this story in *De vita* III.xxi; see Ficino 1989, 354–355.

passage in his letter on music shows. Here he answers his friend Canigiani's question about why music is beneficial for body and soul:

> For myself, to say something of your friend Marsilio, this is why, after my studies in theology and medicine, I often resort to the solemn sound of the lyre and to singing, to avoid other sensual pleasures entirely. I do it also to banish vexations of both soul and body and to raise the mind to the highest considerations and to God as much as I may. This I do with the authority of Hermes Trismegistus and Plato, who say that music was given to us by God to subdue the body, temper the mind, and render him praise. I know that David and Pythagoras taught this above all else, and I believe they put it into practice.[183]

According to Ficino, the success of some of the skilful musicians who practised healing by music is not surprising, for

> sound and melody arise from meditations of the mind, the impulse of fantasy, and the desire of the heart, and in disturbing the air and providing it with proportion, they set the airy spirit of the listener into vibration, which is the link between the human body and soul. Thus, sound and melody easily arouse the fantasy, affect the heart and reach the inmost recesses of the mind; they are able either to still or set in motion the humours and the limbs of the body.[184]

Above all, the music-therapeutic theory of Ficino's *Compendium* is based on *Tim.* 89a, where Plato—in sharp contrast with warnings in other dialogues about music's negative influence—had argued that eurhythmics, dance, and the act of making or listening to music are beneficial for a human being. Consequently, Ficino prescribes physical exercises involving music, which influence the pulse in order to rebalance the bodily humours and the passions of the mind.[185] The *Compendium* adopts a traditional music-therapeutic view that during the intertwined processes of hearing, blood circulation, and respiration, healing substances like musical spirits can enter and pathogenic

183 Letter 92, "De Musica", in Ficino 1576 (1962), 1: 651; 1975–2009, 1 (1975): 142–143.

184 Letter 92, "De Musica", in Ficino 1576 (1962), 1: 650–651; translation modified from Ficino 1975–2009, 1 (1975): 141–142.

185 *Tim.* 89a, corresponding to *CiT* XXXXVII, 80^{r}. For the conception of the music of the pulse in Ficino's *Compendium*, see Prins 2012. For the theory of the music of the pulse in the writings of Italian academic physicians, see Siraisi 1975.

waste can leave the body.[186] This view is based on a theory of sensation according to which the sense organs are of the same substance as what is sensed. Similarly, things in nature with a similar shape correspond and reinforce each other. Hence, the human voice, as pure vibration, coming from a round-shaped mouth and the lyre as a stringed instrument with an egg-shaped form are the most powerful instruments in a music therapy:[187]

> We believe that this is how nature has given a shape of this kind to the instrument of hearing [i.e., the ear] and the instrument of speaking [i.e., the mouth], and art too has, so far as possible, given a similar shape to musical instruments. Certainly, those which are closer to an oval shape [e.g., the lyre] are more consonant.[188]

Everything circular or oval—be it sounds, instruments, or dance movements—is beneficial because it is capable of stimulating the archetypal harmonic circle of the soul.

As in the theories of ancient and medieval music theorists, for Ficino the curative powers of music stem from its relationship—the *musica humana* of man as microcosm—to *musica mundana* and *musica instrumentalis*. As such, the fourfold system presented here is a further explanation of his conception of the four humours (A (yellow bile), B (blood), C (phlegm), and D (interpreted as black bile) in fig. 3.2). In its essence his system is very similar to that presented in sources such as Ptolemy's *Harmonics*, in which the four elements and their primary qualities in the macrocosm connect with the humours and temperaments in man and with different tones or strings in earthly music (table 3.1).[189]

Allen (1994, 102) has explained that Ficino accepts the traditional prescription that, in general, heat should exceed coldness in human beings by 2:1, wetness should exceed dryness by 3:2, and heat should exceed wetness by 4:3. On the most fundamental level, health, or the perfect complexion, in Ficino's philosophy is defined as a literal kind of well-temperedness between the four

186 *CiT* XXXXVI, 79^{v}.

187 Tomlinson 1993, 101. My interpretation of the chapters in Ficino's *Compendium* dealing with the subject of 'music therapy' corroborates Tomlinson's view that for Ficino purely musical material was as powerful as a combination of words and sounds used in song.

188 *Hinc fieri arbitramur, ut et natura eiusmodi, quasi figuram audiendi instrumento tribuerit, similemque instrumento loquendi, et ars praeterea similem, quoad fieri potuit, musicis instrumentis. Ea certe consonantiora sunt, quae ovali figurae propinquiora. CiT* XXXI, 71^{r}.

189 See Ptolemy, *Harmonics* III.16, in Barker 1989, 2: 390–391.

TABLE 3.1 *The interrelationships between* musica mundana, musica humana, *and* musica instrumentalis.

Musica mundana		*Musica humana*		*Musica instrumentalis*
Element	**Primary qualities**	**Humour**	**Temperament**	**Tone**
fire	dry and hot	yellow bile	choleric	high tone (string)
air	hot and moist	blood	sanguine	medium high tone
water	moist and cold	phlegm	phlegmatic	medium low tone
earth	cold and dry	black bile	melancholic	low tone

humours.[190] Accordingly, to diagnose a patient, a musical healer requires a thorough knowledge of harmonics and music theory, combined with the astrological knowledge to read horoscopes.

Ficino, however, is not satisfied with an explanation purely in terms of cosmic correspondences. In addition, he tries to explain musical healing in physiological and functional terms. For this reason he consults authors such as Galen, whose *De placitis Hippocratis et Platonis* (*On the Doctrines of Hippocrates and Plato*), as Nutton (1988, 292–293) has demonstrated, was an important source for the medicine of the *Compendium*.[191] In this source Galen had explained that the pulse in the body is performed by the heart and veins. By their dilation, the veins draw outside air into the body through openings that extend to the skin, for three purposes: to cool, to fan, and to generate spirit.[192] Furthermore, by their contraction, the veins squeeze out the humours within them that have become sooty and smoky:

> And when they are dilated, these [veins] take in fresh air throughout the body both to cool down the hot spirits as well as to generate animal spirit. [But when they are] contracted, on the other hand, they remove the dark

190 See Siraisi 1990, 101–104.

191 For Galen's system of physiology and medicine, see Siegel 1968. For a summary of Galenic texts taught in early Renaissance Florence, see Park 1985, 245–248.

192 For Galen's criticism of Plato ideas about spirit, respiration, and perspiration mentioned in Ficino's *Compendium*, see Galen, *De placitis* VIII.7.^{14}–8.^{23}, in Galenus 1978–1984, 2: 528–529.

> vapours [i.e., an overdose of black bile] inserted in the spirit. [Galen] rightly calls this kind of motion perspiration.[193]

It is a physiological fact, then, that during the interlinked processes of blood circulation, respiration, transpiration, and perspiration, healing substances such as medical spirits can enter the human body, and pathogenic waste, like the dark vapours associated with black bile, can leave it.[194] Spirit is of vital importance for Ficino because it is able to intermingle with the earthly matter of the human body and bring about changes in its form.[195]

Given that musical spirits are equal in their intermediate nature to both cosmic and human spirits, music is able to influence both the human body and the human soul. This enables Ficino to connect music in general and lyre playing in particular with medicine—as Walker (1958, 3–11, 19) and Haar (1961, 347) explain—following the Graeco-Arabic tradition in placing faith in the healing powers of music. Not content with repeating bookish ideas about music and medicine, he evidently searches for ways of putting the music theory of the *prisci theologi* into a modern practice. In this letter he explains, first of all, how the cosmos, as the well-tempered "celestial lyre of Apollo", which we encountered in chapter 2, represents a kind of ideal of cosmic health in which man can participate.[196] This ideal is indicated with the term 'well-temperedness'. Subsequently, Ficino declares that as soon as one becomes aware that music and medicine originate from Apollo as their source, this understanding can form a starting point for a belief in the healing power of music:

> Orpheus in his book of hymns[197] asserts that [Apollo] by his vital rays bestows life and health on all, and drives away disease. Moreover, by the

193 *Quae quidem dilatatae externum aerem per totum corpus accipiunt et ad spiritus ferventes refrigerandos, et ad animalem spiritum generandum. Compressae vero caliginosos vapores spiritus insertos expurgant. Eiusmodi motum perspirationem proprie nominat. CiT* XXXXVI, 79^{v}.

194 It is important to keep in mind that the mind-body interface in Ficino's physiology is different from modern theories, which deal with the mind and the body as two separate systems. Ficino conceives of the body as an organic, animated structure, in which spirit functions as a bridge between the realms of body and mind. The term *perspiratio* (perspiration, transpiration) is used by Ficino to describe the evaporation of material and spiritual waste drawn off from the venous system inside the body. It is used here alongside the terms *exspiratio* (expiration) and *respiratio* (respiration), which are used to describe the exhalation and inhalation of air and spirit via the mouth as well as the skin.

195 *De vita* I.2, in Ficino 1989, 110–111.

196 See *CiT* XXX, 69^{v}, and XXXII, 72^{r}.

197 For Ficino's use of the Orphic hymns, see Klutstein 1987, 21–45.

> sounding strings, that is, by their vibration and power, he tempers all things [in the cosmos]: by the *hypate*, that is, the lowest string, winter is produced; by the *nete*, the highest string, summer, and by the *Dorians*, that is, the middle strings, spring and autumn.[198]

A well-tempered human being is clearly the ideal that Ficino aimed for. But real human beings often proved to be far from this ideal. In his *Compendium*, Ficino restates one of his famous case studies: that Saturnine and melancholic people are born with a negative astral disposition and, therefore, are much more in need of music to rebalance their four humours than patients with a different astrological disposition (see: table 3.1). Just as in the macrocosm the mathematical structure of the element 'earth' prevents it from transmuting easily into the other three elements, in man as a microcosm the humour black bile cannot easily be mixed with the other three humours:

> A scalene shape, because of its inequality, belongs to fire, air, and water, and these are called 'unequal' because of their mutability. An isosceles shape, with its greater equality, looks to earth, which is more stable. Those three [i.e., fire, air, and water] are easily changed into each other, because of their shared liquidity. But it is very difficult to transmute them into earth or earth into them, on account of the solidity and the density proper to earth. For all the while it seeks the centre, it rejects communality [with the other elements]. It is likewise very difficult for there to be an exchange between black bile in nature and the three other humours. Saturn, lord of earth, is not mingled in the heavens; neither do Saturnine and melancholic people mix in the world. Similarly, the Jews too are subject to Saturn.[199]

According to Ficino, then, Jews like himself are often of a Saturnine and melancholic disposition; consequently, they do not mix easily with people with

198 Ficino 1576 (1962), 1: 651; 1975–2009, 1 (1975): 141–142.

199 *Scalenus propter inaequalitalem pertinet ad ignem, aerem, aquam. Quae propter mutabilitatem inaequalia nuncupantur. Aequicrurius ob maiorem aequalitatem spectat ad terram stabiliorem. Tria illa facile invicem commutantur, propter communem liquiditatem. In terram vero vel terra in illa difficillime propter duritiam contractionemque terrae propria. Dum enim petit centrum, consortium refugit. Difficillima similiter est inter naturalem atram bilem ac tres alios humores commutatio. Saturnus, terrae dominus, non permiscetur in caelo. Saturnini et melancholici in terra similiter. Similiter et Iudaei Saturno subiecti. CiT* ("Distinctiones") XL, 86r.

different temperaments and horoscopes.[200] This is a reformulation of a traditional view, discussed in Klibansky et al. (1964, 121), in which the melancholic disposition was associated with the Jews as a race. As Klibansky et al. (1964, 32ff. and 49ff.) and many others after them have demonstrated, this melancholic disposition can be a blessing in disguise: although it can lead to depression, it can also lead to a kind of genius—or outstanding musicality—as an expression of 'mania'. In order to better understand Ficino's idea of musical healing, let us first have a closer look at the process of diagnosis and musical cure as formulated in his *Compendium*.

Following *Tim.* 87b–90d, above all Ficino studies human physiology from the perspective of a healer interested in preventing illness and preserving and enhancing health. To a greater extent than Plato, however, he believes in music as a potent and positive antidote against all kinds of psychosomatic illnesses. He, moreover, is interested in the physiological effects of music on the body and the soul, which he studies in great detail.

Ficino follows Plato in allowing the influence of the body upon the soul to be very strong.[201] The body's humours are responsible for bringing about alterations in the passions of the mind.[202] Ficino's philosophy associates these passions with mental illness, arguing that the passions of the mind can cause errors in judgement and therefore must be mastered in order to give full play to the perfect circular movement of the immortal rational soul:

> [Plato] says [at *Tim.* 86b] that madness is double. One [kind of madness] is hidden and consists of a continuous affection for and ardent inclination to insanity, such as, for instance, a certain behaviour with an extreme propensity toward perturbation of some kind.[203] The other [kind of madness] is revealed when some disturbance has increased above a nor-

200 Ficino firmly believes in the existence of physiological causes underlying a kind of aberrant melancholic complexion in Jews. Moreover, in his melancholy doctrine, as analysed by Hankins 2011, "monstrous melancholy" is associated with atheism.

201 For Plato's idea of re-establishing the original harmony of the human body and soul, see Joubaud 1991, 226–243.

202 Kristeller 1943, 238. Though the fifteenth-century 'passions of the mind' can be compared to modern emotions, many modern conceptions of emotion are not fitting in every aspect. In Neoplatonic theory a passion of the mind is often conceptualized as the passive counterpart of the active intellect, and by being passive such passions were classified as lower than the active intellect in the hierarchy of cognitive faculties.

203 *De vita* I.v, in Ficino 1989, 116–117. Ficino translates Plato's term μανία in this passage with *insania* (insanity), whereas he translates it in other writings with *furor* (frenzy). The ambiguous concept of 'melancholy', referring to illness as well as to creativity, and even

> mal level, as with the highest degree of lust, pleasure, fear, pain, and anger, or when the vapours of bodily humours are locked in the parts of the body—for example, black bile originating from an inflammation of the blood or bile or salty phlegm.[204]

In his *Compendium* Ficino clearly supports the Platonic theory that an overdose of black bile may produce a state of ecstasy (*furor*) during which normal sensory perception is temporarily blocked, transcended, or both.[205] In this passage, Ficino associates mental illness with a disturbance of the blood in which it is no longer composed of an equal dose of the four humours. As explained by Kristeller (1943, 211ff.) and Walker (1958, 4), the combination of sitting and thinking, for example, sometimes produces an overdose of black bile, which is poisonous to both one's body and one's soul. Dense, dry, and black blood, then, is the negative consequence of consuming too many spirits during the act of exhaustive mental exercise. The spirits which derive from black bile are exceptionally fine, hot, agile, and flammable and are, therefore, liable to ignite and produce a temporary state of mania or exaltation; this is followed, like the black smoke left after a fire, by extreme depression and lethargy. If, however, black bile is properly tempered with a little phlegm and bile, and a lot of blood, the spirits will glow, not burn.

According to the system outlined in table 3.1, a musical healer is able to rebalance the four humours in either an allopathic or a homeopathic way.[206] The involuntary and disharmonic affections and movements of the soul caused by its fall through the planetary spheres at its incarnation (*Tim.* 41d–42d), which is reflected in an imbalance in the bodily fluids, can be brought to rest by the implementation of fitting music, just as drugs can cure the body:

> the soul and body are in harmony with each other by a natural proportion, as are the parts of the soul and the parts of the body. Indeed, the harmonious cycles of fevers and humours and the movements of the

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genius, has played an important role in the thinking about mental health and illness ever since.

204 *Insaniam vero duplicem esse ait. Unam quidem occultam quae in continua pronaque ad insaniam affectione consistit. Puta habitum quendam ad perturbationem aliquam propensissimum. Alteram vero manifestam, scilicet quam vel aliqua perturbatio supra modum adaucta detegit, ut in gradu summo cupiditatis et voluptatis timorisque et doloris et irae, vel vapores humorum inclusi membris inducunt, ut atra bilis ex sanguinis, vel bilis, vel salsae pituitae adustione proveniens. CiT* XXXXVII, 80r.

205 *CiT* ("Distinctiones") LXXXXVIII, 92r.

206 See Kümmel 1977, 131–137.

> pulse itself also seem to imitate this harmony. Grave music, as Plato and Aristotle claim, and as we have often found by experience, maintains and restores the harmony of the parts of the soul, while medicine restores harmony to the parts of the body. Since the body and soul, as we have said, harmonize, it is easy to care for the harmony of both body and soul in the same man.[207]

In sum, an overdose of black bile causing melancholy can be removed in an allopathic way by playing cheerful music with high tones, or in a homeopathic way by playing grave music with low tones. The beneficial effects of music, however, can be intensified if, in addition, a healer were to imitate the music of the planetary spheres, as I will analyse in further detail now.

3.5.2 *Therapeutic Planetary Music*

Ficino's innovative theory of therapeutic planetary music is inspired by traditional ancient theories of musical *ethos* and *mimesis*.[208] As a point of departure, Ficino's *Compendium* follows Plato, who believed that music was a form of *mimesis*, or imitation.[209] Ficino likewise believes that the thing imitated in music is automatically imitated by the person who 'moves with' it.[210] If the music imitates something good, therefore, those who move with it will also imitate something good. Because human beings form their characters though imitation, it follows that music has a vast moral significance. In line with Platonic as well as Aristotelian philosophy, Ficino maintains that music is able to imitate human moral character, copying those dispositions which we know as virtues and vices: it can, for example, be noble or profane, Solar or Saturnine, manly or effeminate.

Ficino also follows Ptolemy, who had expressed the belief that music can convey, foster, and even generate ethical states.[211] The scheme of relationships between states of mind and musical modes given in Ptolemy's *Harmonics* is as follows: frenzy (*furor*) is paired with the Mixolydian musical mode; excitement with Phrygian; pleasure with Lydian; [neutral] with Dorian; depression with Hypophrygian; relaxation with Hypolydian; and, finally, deep sleep with Hypodorian. All these mental states, in Ficino's opinion, can be induced by playing music in the right musical mode. Conversely, all these mental states

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207 Ficino 1576 (1962), 1: 651; translation modified from Ficino 1975–2009, 1 (1975): 141–142.

208 For an introduction to the place of these concepts in Renaissance music theory, see Palisca 2006, 179ff.

209 See Plato, *Republic* 397–401b, in Barker 1984 vol. I 127–135.

210 Scruton 1997, 118.

211 See *Harmonics* III.7, in Ptolemy 2000, 150–151.

can be changed or made to disappear by playing an opposite musical mode. Ficino was one of the numerous writers in the fifteenth and sixteenth centuries who, as noted by Palisca (2006, 3), applied the characterization of the *harmoniai* (*i.e.* the octave species (*tonoi*) in all genera) of ancient writers such as Plato and Ptolemy to the medieval church modes under the misapprehension that they were one and the same.

Ficino's *De vita* cites a classic example of the homeopathic powers of music: in Apulia victims of the bite of the tarantula were made to dance by hearing certain music and were cured by their dancing.[212] The music one would traditionally prescribe for this case might be simply 'something lively'. Ficino, however, as Walker (1958, 17–18) notes, gives a more specific prescription: the music must be 'Solar' and 'Jovial'. Let us examine what he means by this specification.

For miraculous musical healing, both of mental illness and of venomous spider bites, Ficino credits music as a quicker and hence more efficacious remedy than medicine. Theorizing about the connection between music and medicine was especially common in university circles.[213] However, as Walker (1958, 14ff.) has shown, Ficino's remarks suggest that he tried some original experiments with planetary music as a therapeutic.[214] Let us examine how Ficino explains the therapeutic power of planetary music in his *Compendium*. He begins this explanation in chapter XXXI with a comparison between normal doctors and musical healers:

> The most expert doctors mix certain fluids together in a certain proportion, and as a result many varied substances come together into a single new form and in a wondrous way obtain a heavenly power in addition to their elemental power. This [transformation] is evident in Mithridates's concoction[215] and in Andromachus's remedy for animal bites.[216] In the same way the most skilful musicians blend together very low tones[217] like cold substances, very high tones like hot ones, moderately low tones like

212 *De vita* III.xxi, in Ficino 1989, 363. For Ficino's place in the history of tarantism, see Horden 2000, 249–312, esp. 260–261.

213 See Siraisi 1975, 689–710.

214 For the way to obtain life from the heavens through harmony and music, see *De vita* III.ii and III.xxi, in Ficino 1989, 248–255, 355–363. The classical treatment of Ficino's astrological medicine can be found in Zanier 1977.

215 Fear of poisoning prompted Mithridates the Great to develop a universal antidote, with which he became the father of empirical toxicology. See Nutton 2004, 141–142, 177.

216 Andromachus developed the antidote Theriacus against the bites of wild animals; it was composed of opium mixed with a tannic, bitter substance. See Beecher 2002, 243–256.

217 In Ficnio's philosophy of music, it is highly likely that the Latin term *vox* refers to a tone in vocal music.

> wet substances, and moderately high tones like dry ones.[218] These they blend together in such a proportion that a distinct single form is created out of many, and that form obtains a heavenly virtue over and above its auditory one.[219]

Subsequently, Ficino explains the miraculous healing power of music in terms of the efficaciousness of the privileged Pythagorean consonances. Because these consonances express the Pythagorean cosmic temperament of the World-Soul, their vibration and power can be used to temper the human body and soul, just as Apollo's vital rays are able to "bestow life and health on all and drive away disease".[220] A melody in earthly music built on these privileged consonances is able to temper the human soul and ultimately to make it receptive to cosmic harmony:

> For it is said that some illnesses not only of body but also of mind can be miraculously cured by certain [Pythagorean] consonances.[221] Thus, it is not surprising that the ancient wise men attributed the origin not only of medicine but also of music to the same source—namely, the divine power of Apollo. For each is a kind of medicine, but one cures the soul via the body, and the other cures the body via the soul. Indeed, it is very appropriate that they assigned prophetic power to Apollo, the source of melody. For only melody makes the soul concentrate on itself, drawing it away from everything that could distract it and into, so to speak, an interior

218 Ficino probably made a slight error in his explanation. In the traditional system of the four elements, humours, and temperaments, moderately low voices already possess a moist quality, and thus, in order to temper them, they have to acquire a dry or a hot quality (see table 3.1). Ficino may have had in mind a slightly different system, however.

219 *Quemadmodum medici peritissimi certos invicem succos certa quadam ratione commiscent, per quam in unam novamque formam plures atque diversae materiae coeant, et ultra vim elementalem virtutem quoque caelestem mirifice nanciscantur, quod in Mithridatis confectione et Andromachi theriaca est manifestum, similiter artificiosissimi musici gravissimas voces, quasi materias frigidas, voces item acutissimas, quasi calidas, rursus mediocriter graves, ut humidas, mediocriter et acutas, ut siccas, tanta ratione contemperant, ut una quaedam forma fiat ex pluribus, quae ultra vocalem virtutem consequatur insuper et caelestem. CiT* XXXI, 70^{v}.

220 Letter 92, "De musica", in Ficino 1576 (1962), vol. 650–651; translation modified from Ficino 1975–2009, 1 (1975): 141–142.

221 It seems the case that Ficino uses the Latin term *concentus* to refer in this context to a vertical harmonic interval or chord. However, as mentioned above, there seems to be no clear difference between the terms *concentus* and *consonantia* in Ficino's music theory.

> way of listening, by which it perceives not only the tones themselves but also the proportions of the tones. And by calming its disturbances, melody tunes the soul to heavenly harmony and pours out divine oracles from Heaven.[222]

Ficino continues to explain that beyond their auditory qualities, these consonances are imbued by nature with magical and astrological spirit (power, energy), which the philosopher-musician has to trace in order to be able to influence them.[223] If he is doing so successfully, he channels the essential harmony by which the human soul can draw into its constitution any portion of the elemental, ethereal, and empyrean realms (fig. 3.5). Like chemical reactions in combinations of herbs, which make the mixture more powerful than the separate ingredients, in combinations of tones—in melodic as well as harmonic intervals—a fusion with supernatural powers occurs, on the basis of which these consonances become literally animate with musical spirit:[224]

> And if, above and beyond the skill and labour of doctors, nature also acts on a combination of herbs, and does so in a certain time, then much more does nature act immediately on the very tractable and malleable tonal substance. Nature, I say, which is living everywhere and fortified by heavenly strength, acts upon this substance which is more like Heaven and virtually alive. Nature brings to the stuff of which tones are made a new, living, and miraculous form, as a result of which it is able through a hidden faculty to exercise its powers over the human body and soul.[225]

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222 *Nam certis concentibus morbi quidam tam corporis quam animi mirabiliter curati dicuntur, ut non mirum sit veteres sapientes in idem, id est, Apollineum numen tam medicinae quam musicae originem rettulisse. Utraque, enim, medicina est. Sed altera quidem ex corpore animam, altera vero ex anima curat corpus. Accommodatissime etiam Apollini melodiae fonti vaticinium tribuerunt. Sola, enim, melodia, ab omnibus quotcunque distrahunt animum retrahens, contrahit in seipsum, in auditum quendam* (*ut ita loquar*) *interiorem, quo non voces solum, sed et rationes vocum percipiuntur, sedatisque perturbationibus caelesti contemperat harmoniae, divinaque caelitus effundit oracula. CiT* XXXI, 70^{v}, 71^{r}.

223 See Védrine 1996, 10.

224 For Ficino's ideas about alchemy, see Matton 1993, 123–192.

225 *Ac si in herbarum congestam molem ultra industriam et operam medicorum agit deinde natura, et tempore quidem certo, multo magis in vocalem materiam tractabilem admodum et formabilem agit natura subito; natura, inquam, ubique vivens viribusque munita caelestibus in materiam caelo similiorem et quasi vivam; cui quidem repente novam, vivam, mirificam adhibet formam, per quam occulta virtute vires suas in corpus experiatur et animum. CiT* XXXI, 71^{r}.

If combined in the right way, tones can obtain a cosmic harmonizing power, on the basis of which they become imbued with cosmic spirit from the heavenly consonances with which they have a harmonic likeness:

> Furthermore, just as in the body, which naturally consists of the four elements, the four elemental qualities constitute a single and, as some people would say, fifth elemental complexion, one subject to the special power that will come from Heaven in occult ways, so also many tones, mixed in the right way, produce in turn a single harmony as the foundation of a new and marvellous power. For if from one sounding lyre something suddenly resounds on another lyre which is tuned in the same way, and if from one vibrating string a like vibration is immediately passed on to another string which is equally tightened, who would doubt that from a mixture of tones, which are united in a certain ratio, a unique form, as it were, which is common to all, is immediately generated; and through this the many become one and, therefore, are perceived by the sense of hearing as a unity and fuse into a single effect?[226]

In his *Commentary on Plotinus* and *De vita*, as Walker (1958, 22) and Voss (2000, 154ff.) explain in detail, Ficino follows late antique Neoplatonists such as Plotinus and Proclus in his belief that the world lives and breathes and that man may inhale its breath (*spiritus* or *aether*) by means of the human spirit. This process is furthered if man renders his spirit even more similar than it already is by nature to the cosmic Spirit, which is associated with the perfect harmonic forms of the sphere and the circle. Just as an inactive string can adopt the tone of a sounding string to which it has a harmonic likeness, a human spirit—envisaged as a string—is able to resonate sympathetically with the string of the cosmic Spirit, to which it bears a harmonic likeness (fig. 3.5). Thus, cosmic sympathetic vibration, discussed at 2.4.4, is also active on the level of man.

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226 *Proinde quemadmodum in corpore ex elementis quatuor naturaliter constituto, qualitates elementorum quattuor, unam et, ut quidam nominant, quintam conficiunt complexionem, videlicet subiectam virtuti speciali occultis modis caelitus proventurae, sic et voces plures rite commixtae unum quendam invicem resonant reboatum virtutis novae atque mirabilis fundamentum. Nam si ex sonante cithara, in citharam similiter temperatam, resonat repente nonnihil, et ex chorda vibrata, statim in chordam aeque tentam transit vibratio similis, cui nam dubium sit ex pluribus vocibus una quadam ratione conflatis unam subito nasci quasi formam communem cunctis, per quam plura sint unum, ideoque ut unum percipiantur a sensu, et in unum quendam congrediantur effectum. CiT* XXXI, 71r.

In order to avoid repetition, in the context of his discussion of planetary therapeutic music Ficino's *Compendium* refers to the two works in which he has dealt with the analogies between the cosmic, human, and musical spirits:

> The nature of the heavens, just like the spirit in us, can thus be defined as a middle substance between the dense body of the world and the World-Soul. First, therefore, the heavens became animated. Thus, where you hear that from the centre of the world a secret life is dispersed through all things, be aware that a heavenly nature is also there, the individual vehicle [i.e., ethereal body][227] of the soul. But I have discussed these issues carefully in my *Commentary on Plotinus* and *Three Books on Life*.[228]

The relationship between the human spirit and the ethereal body of the human soul is not entirely clear in Ficino's *Compendium*.[229] But in order to provide a coherent interpretation of the text, I assume that to a certain extent they are mutually exchangeable in light of Ficino's theory of therapeutic planetary music. In this way it can be argued that through the phenomenon of cosmic sympathetic vibration, consonances in earthly music, which resonate sympathetically with heavenly consonances in the cosmic spirit, are able to influence the human ethereal body, which is the ethereal vehicle of the human soul.

Ficino's conception of the ethereal body fits the context of planetary therapeutic music very well because the ethereal body, since it derives from the stars, is peculiarly subject to astral influences and is in urgent need of purification. As Walker (1985, 145) has explained, since the ethereal body does not leave the soul at death, it can drag it down or, if made light and dry during a good life, ascend with it.

In Ficino's explanation of the creation of man in the *Compendium*, the Neoplatonic theory of the ethereal body is addressed only partially:

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227 As a concept the ethereal body of the soul is comparable to, and perhaps also derived from, the membrane in which an embryo is enclosed in the womb.

228 *Natura caelestis ita media est inter crassa mundi corpora eiusque anima, sicut in nobis spiritus. Primo igitur animatur caelum. Quapropter ubi audis a centro mundi vitam per omnia dilatari secretum cogita, illic quoque naturam inesse caelestem, proprium animae susceptaculum. Sed de hoc diligentius in commentariis in Plotinum et in libro de vita tractamus. CiT* XXVII, 68^{r}.

229 It is well known that Ficino, like many Neoplatonic philosophers before him, in taking up the image of the chariots in Plato's *Phaedrus* (247b), imagined a subtle spiritual entity that would serve as a kind of vehicle for the soul when it travelled to a body, and as a kind of carriage while their union lasted. Just like individual souls, so the World-Soul has its ethereal vehicle. See Kristeller 1943, 211–214.

> But then, [during the Creation] God assigns souls, that is, individual orders of souls, to individual stars. And he gave them vehicles [*Tim.* 41e], namely, ethereal bodies.[230]

According to *Tim.* 41e the soul acquires the ethereal vehicle from the various stars and spheres that it passes through during its descent into the earthly body.[231] The moment at which the soul, wrapped in its ethereal vehicle, descends through the planetary spheres to be united with a human body at the moment of birth determines a person's horoscope.[232] The ethereal body of a human soul originally is round, but after incarnation in a human body, its form is distorted into an angular shape, which can be associated especially with the element of earth:

> But let us return to the body nearest the soul. The Magi [i.e., the Chaldean Zoroastrians, a subgroup of the *prisci theologi*] call this body the vehicle of the soul, that is, the little ethereal body received from the ether, the soul's immortal garment; it is round in its natural shape because of the [rotundity of] the ether's region, but it transforms itself into our [angular] human shape when it enters the human body, and it restores itself to its former shape when it departs from it.[233]

Man exists on earth to purify his ethereal body and to make it more celestial. Purifying means that man's ethereal body has to become a sounding board for the music of the spheres during his earthly life. By attracting beneficial planetary influences, the circular shape of someone's ethereal body can be restored.

As explained by Walker (1958, 22), Ficino combines the astrological and magical beliefs and practices described in Greek Neoplatonic writings with Pythagorean theory about cosmic harmony. His belief in astrology and natural magic is strong enough to make him recommend a whole series of activities

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230 *Tum vero deus animas, id est singulos ordines animarum, singulis stellis accommodat. Adhibet et vehicula, id est aetherea corpora. CiT* XXXXII, 77^{v}.

231 For the use of the concept of an astral body in Renaissance medicine, see Walker 1985, 119–133.

232 For the traditional theory of the harmony of the human embryo's gestation period, see Burnett 1990.

233 *Sed iam ad corpus animae proximum redeamus. Hoc vocant Magi vehiculum animae, aethereum scilicet corpusculum acceptum ab aethere, immortale animae indumentum, naturali quidem figura rotundum propter aetheris regionem, sed in humanam effigiem sese transferens quando corpus humanum ingreditur atque in priorem se restituens cum egreditur. TP* XVIII.iv.3, in Ficino 2001–2006, 6 (2006): 104–105.

designed to attract favourable celestial influence. In his *De vita* Ficino discusses three activities, among which music is of prime importance. As Walker, Haar, Tomlinson, Pennuto, and Voss have analysed Ficino's astrological and magical music in detail, it is not necessary to go over the same ground they cover.[234]

It would be useful, however, to reinterpret the discussion about Ficino's therapeutic planetary music on the basis of Hankins's (2007, 35ff.) claim about the status of magic in Ficino's oeuvre. Hankins rightly notices that the modern literature on Ficino's magical theory stresses that it is primarily a natural or spiritual magic that is entirely subjective in its effects, not transitive: that is, unlike demonic or angelic magic, it is meant to transform the operator rather than to have effects outside the body of the operator. To a certain extent, this applies also to the modern literature on the use of music in Ficino's magic.

In line with Hankins, I will argue that the characterization of Ficino's musical magic in this literature is incomplete and somehow distorted because it neglects the more ambitious side of Ficino's musical magic, which is found in his *Compendium*, especially in the "Distinctiones", which were removed from the main text of the commentary. Here we find a theory of magic derived from Proclus, Avicenna, and al-Kindi that emphasizes the extraordinary power over nature that can be exercised by the highest power of the human soul (i.e., the rational soul), both within one's own body and upon other bodies and indeed upon the whole body of nature. Using this more ambitious magic, defined by Hankins as mental, angelic, or demonic magic, in Ficino's theory of healing planetary music the human soul can exploit occult correspondences in the cosmos to cause paranormal phenomena. Despite the fact that Ficino's therapeutic planetary music is based on the concept of cosmic sympathetic vibration, discussed at 2.5.3, which is often classified as spiritual magic because it is derived from a physical phenomenon, I will argue that some of the phenomena that are explained in Ficino's *Compendium* in terms of sympathetic vibration are ambiguous in the way in which they blend spirits and demons.

When Ficino in *De vita* gives his rules for composing or improvising music to attract the influence of benevolent planets, as noted by Walker (1958, 17) he does not furnish a precise description of the musical aspects of these planets.[235] He does prescribe as a first rule that one must enquire what inherent powers stars and constellations possess and, in the verbal content of a song, detest what they remove and approve what they bring. Second, one must observe which planet principally rules over certain men and certain localities and

234 See Walker 1958, 12–24; Haar 1960, 343–362; Tomlinson 1993, 67–100; Pennuto 2000, 2001; and Voss 2000, 2002.

235 *De vita* III.xxi, in Ficino 1989, 355–363, esp. 361.

employ the tone and type of melody proper to these men and places. Third, he advises that one observe the positions and aspects of the heavenly bodies, note the particular melody men are impelled to use under these aspects, and imitate these melodies, so as to "to catch an influence that resembles them".[236]

In his *Theologia Platonica* Ficino takes the theology of Orpheus and the Orphic hymns as a point of departure in his explanation of how the souls of the spheres are divided "in such a way that each has a twin power, one concerned with knowing, the other in the sphere's body with giving life and ruling".[237] In this particular passage further evidence is found for Haar's (1960, 344ff.) thesis that Ficino—just like other Renaissance music theorists such as Franchinus Gaffurius—believed in a music of the spheres caused by a twin power that is derived from the World-Soul. This power expresses itself in the harmonious relationships among the planets governed by their proportionate speeds of revolution. The harmonious ratios of the planets, moreover, are identical with numerical proportions that produce musical harmonies in earthly music such as the Orphic hymns, each with its own specific musical modus and inherent *ethos*. In addition, the Florentine links the tones produced by the harmonic ratios of the planetary revolutions with the Nine Muses.[238]

In ascending order, as explained by Haar (1974, 7–22), the Moon is linked with Thalia, Mercury with Euterpe, Venus with Erato, the Sun with Melpomene, Mars with Clio, Jupiter with Terpsichore, Saturn with Polyhymnia, and the eighth celestial sphere with Urania.[239] In order to end up with a complete list of all Nine Muses, Ficino follows 'Orpheus' in claiming that the Muse Calliope is present in the heavens as the second power in the Soul.[240] After having provided this list, he argues that "the Nine Muses", which are "drunken by the nectar of knowledge divine, together celebrate their ecstatic rites around the single figure of Apollo, that is, around the splendor of the invisible Sun".[241]

Now, Ficino himself admits that it is difficult to know which tones harmonize with which stars, but he thinks he has solved the problem. Walker (1958, 12–24) takes him to mean that one has to find music 'appropriate' to the planets,

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236 *De vita* III.xxi, in Ficino 1989, 358–359.

237 *TP* IV.i.28, in Ficino 2001–2006, 1 (2001): 292–293.

238 *CiT* XXXIII 73^{r} and *TP* IV.i.28, in Ficino 2001–2006, 1 (2001): 294–295.

239 Haar (1974, 7–22) analyses connections between planets, tones, and Muses in the frontispiece of Gaffurius's *Practica musicae* (1496); making these connections seems to have been common practice in Italian fifteenth-century music theory. For the reception of Ficino's *Compendium* in Gaffurius's music theory, see Kinkeldey 1947, 379–382.

240 *TP* IV.i.28, in Ficino 2001–2006, 1 (2001): 294–295.

241 *TP* IV.i.28, in Ficino 2001–2006, 1 (2001): 294–295.

which is of course correct, but he stops there. Subsequently, Haar (1960, 358–359) has argued that what is 'appropriate music' for Ficino in this context is in fact the very music of the spheres themselves, and to be successful, human invocations of this music ought to be as exact an imitation as possible. One should aim, then, at reproducing the music of the spheres itself. It may now tentatively be concluded that Ficino's interpretation of the music of the spheres was a fruitful misunderstanding based on the belief that the *harmoniai* of ancient writers such as Plato and the medieval church modes were the same.[242]

In *De vita* as well as in the *Compendium* Ficino supplies further detail. He investigates the particular qualities associated in the tradition of the harmony of the spheres with the music appropriate to each of the planets. Based on his research, Ficino comes to the conclusion that within the cosmic scale discussed at *Tim.* 35b–36b the three beneficent planets Jupiter, Venus, and Mercury all make a harmonic consonance with the tone of the Sun, the fourth beneficent planet. They all possess whole songs, whereas the remaining three planets, the Moon, Mars, and Saturn, possess only a single tone. The descriptive attributes listed by Ficino are appropriate, as Walker (1958, 16) has noted, to the "moral character [*ethos*] of the gods whose names they [the planets] bear". In addition, as Haar (1960, 360–362) and Tomlinson (1993, 67ff.) have argued, it is highly likely that the planetary modes imitate the musical modes used in the earthly music of the fifteenth century, and that in so doing the gap between the doctrine of the harmony of the spheres and the doctrine of musical *ethos* was bridged. Ficino's planetary music is thereby able to convey, foster, generate, or annihilate ethical states. In this respect, it becomes a strong therapeutic instrument in the hands of a learned healer-musician.

Based on the secondary literature discussed above, we may now reconstruct an example of therapeutic planetary music. Solar music and Mercurial music, which are associated with Apollo, are called "venerable, simple, and earnest" (Dorian); and Venusian harmony is "voluptuous, with wantonness and softness" (Lydian). The result of therapeutic planetary music of this kind, if properly composed and addressed, can be extremely powerful:

> When at the right astrological hour you declaim aloud by singing and playing in the manners we have specified for the four [planetary] gods, they seem to be just about to answer you, like an echo or like a string in a lute trembling to the vibration of another which has been similarly tuned. And this will happen to you from Heaven as naturally, say Plotinus and

242 See Palisca 2006, 3, 71–98.

> Iamblichus, as a vibration reverberates from a lute or an echo arises from an opposite wall.[243]

Given the law of cosmic sympathetic vibration, the planetary soul of the Sun can be attracted by singing an appropriate song in the musical modus associated with the planet (i.e., the Dorian mode). As explained by Walker (1958, 22–24), this Orphic hymn to the Sun is an example of suitable music:

> Hearken, O blessed one, whose eternal eye sees all,
> Titan radiant as gold, Hyperion, celestial light,
> self-born, untiring, sweet sight to living creatures,
> On the right you beget dawn and on the left night.
> You temper the seasons as you ride your dancing horses,
> and rushing swiftly, O fiery and bright-faced charioteer,
> you press on your course in endless whirl
> and, harsh to the impious, you teach good to the pious.
> Yours the golden lyre and the harmony of cosmic motion
> and you command noble deeds and nurture the seasons.[244]

If successfully invoked, the 'twin power' of the Sun will be perceived on earth, where it can be beneficially used to make life more harmonious. Listening to and singing music which suits the harmony of a particular planet will ultimately lead to insight into the hidden music of the spheres and its Author.[245]

As Haar (1960, 359–360) and Tomlinson (1993, 101) rightly claim (*pace* Walker), the imitation of the planets must not only be sought in the powerful words of a text but also in the powerful consonances of music. In light of

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243 *De vita* III.xxi; translation modified from Ficino 1989, 360–361.

244 *SOLIS, THYMIAMA LIBANOMANNAN*
Audi beate, omnispice habens aeternum oculum,
Titan aurimicans, Hyperion, coelestis lux,
Per te nate, indefatigabilis, animalium et iocunde aspectus,
Dexter genitor aurorae, sinister noctis,
Temperaturam habens horarum, quadrigressibus pedibus tripudians,
Bone cursor, sonore, ignee, clari vultus, auriga,
Turbinis immensi versationibus iter peragens,
Piis dux bonorum, impiis inimicus,
Aureae lyrae mundi enarmonium cursum trahens.
Ficino's original Latin translation has not survived; the Latin translation is taken from Klutstein 1987, 64. The English translation is by Athanassakis 1977, 12–15.

245 *TP* IV.ii.8, in Ficino 2001–2006, 1 (2001): 206–207.

chapter XXXI of Ficino's *Compendium*, we can now draw the conclusion that if someone felt inspired to become a co-creator of the harmonic structure of his soul by purifying his spirit, he could best invoke the Sun in appropriate words and sounds in order to attract its gift of 'animating life'. Under the law of cosmic sympathetic vibration, listening to or making solar music would then induce vibration in the string of the human spirit, and in the process, it would be able to attract the gifts of the planetary spirit with which it vibrates sympathetically.

The friendly white or spiritual side of Ficino's musical magic can hardly raise any serious objection. Ficino himself, however, was well aware that the musical magic presented in his *Compendium* was fundamentally ambiguous. I contend that Ficino originally had an ambitious, all-embracing, transitive musical magic in mind when he first wrote his *Compendium*, which he later tried to cleanse in order to end up with a form of natural or spiritual magic which was less threatening to the church. This claim is supported by the fact that all passages discussing demonic and angelic magic, including the famous autobiographical passage about Ficino's exorcism, were transferred to the "Distinctiones", presumably with the intent of removing them from the final version of the text, which was never realized. In this self-censured passage, for example, we read:

> In the year 1493, in the month of October, a demon of this [harmful] kind was detected in Florence in a very old, run-down and dark house belonging to a family from Galilee, who was menacing the inhabitants already for two months. And on the basis of various kinds of evidence I came to the conclusion that he was, so to say, without reason and feeling, and Saturnine, that is, a dumb demon and an impure spirit. I therefore gave instructions that, after holy prayers and atonement, the whole house should be thoroughly cleaned, perfumed with selected fragrances, whitewashed, filled with light, and decorated, so that it would no longer be a home agreeable to an impure spirit. And [I gave further instructions] that all this should be done on the day when the Sun came into sextile aspect with Jupiter, for I had learnt that the demon had begun to harass the family the previous August, on the very day and the very hour when Saturn was in opposition to Jupiter. . . . This report is indeed true. Please accept the reasonableness of such an important event, which is fully in line with the theological truth.[246]

246 *Eiusmodi daemonem hoc anno MCCCCLXXXXIII Octobris mense in vetustissima et caduca et obscura quadam Galileae familiae domo deprehendi Florentiae duos iam menses domesticos*

If we interpret this passage through the lens of the close connection between *musica mundana* and *musica humana*, it is highly likely that the "holy prayers" were sung and as such were meant as a form of transitive demonic magic—that is, musical magical incantation with the purpose of having an effect on the soul of the patient. In my opinion, the passage must be read as a variation on the story of David, who had calmed Saul by exorcizing the evil spirit with his harp.[247] Though Ficino expresses a certain concern that the "reasonableness" and "theological truth" of this exorcism will not be obvious for all his readers, there is no doubt that he must have believed in its veracity himself. Just like its biblical model, Ficino's exorcism is a case in which spiritual (natural, white) and demonic (angelic, black) magic are fully merged. In addition, I believe that even if one removes the explicit references to demonic magic, as Ficino did in the later version of his *Compendium*, it is impossible to separate his spiritual from his demonic magic, because the all-inclusive network representing the cosmic harmonic relationships (table 2.1), including the direct connection of the angelic and demonic orders to the human rational soul and to the World-Soul, remains the very foundation of his whole commentary.

To summarize, from his study of Ficino's *De vita*, Tomlinson (1993, 84–89) has convincingly argued that the merit of Ficino's interpretation of the theory of the harmony of the spheres is to be found in the way he fused it with the theory of modal *ethos*, as a result of which it became the basis of a powerful theory of musical healing. My analysis of ideas about musical healing and therapeutic planetary music in Ficino's *Compendium* corroborates Tomlinson's view. First of all, it underlines the important place of Plato's concept of the transmigration of the soul at *Tim.* 42b–d for Ficino's philosophy in general. Second, the analysis casts new light on the thorny question of whether Ficino's philosophy of music is chiefly determined by astrological and magical or by Christian ideas. I am convinced that the account of therapeutic planetary music in Ficino's *Compendium* must be interpreted in line with Ficino's

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infestantem. Quem pluribus argumentis esse quasi brutum Saturniumque iudicavi, daemonium mutum, spiritumque immundum. Iussi igitur post orationes sacrasque expiationes, mundari sordibus domum totam. Electis odoribus saepe affici dealbari, illuminari, ornari, ne domus ulterius foret habitaculum immundo spiritui consentaneum. Idque primum fieri quo die sol ad sextilem pervenit Iovis aspectum. Nam deprehenderam daemonem cepisse vexare familiam Augusto superiore, quo die qua hora opponebatur Iovi Saturnus. . . . Historia quidem vera est, rationem vera tantae rei quomodocumque quis velit, accipiat; dummodo nunquam a theologiae veritate dissentiat. CiT ("Distinctiones") XXIIII, 83r. Translation Arthur Farndell (2010) modified.

247 1 Samuel 16:23. In addition, the story can be interpreted as a variation on Mark 5:21–43, where Jesus raises a dead girl and heals a sick woman.

metaphorical interpretation of the Platonic concept of the transmigration of the soul. Man, who is endowed by God with a free will as well as other sublime cognitive faculties, is given the opportunity to elevate himself to ever higher realms of being. It is his God-given responsibility to actualize the harmonic potential of the world and its inhabitants.

Ficino, moreover, adopts the Platonic idea, expressed at *Tim.* 47d–e, that music is given to man for the purpose of spiritual enlightenment. Yet ultimately, in Ficino's *Compendium*, man for the most part is not governed by the planets, as argued by Plato at *Tim.* 41d–42d, but is rather free to think and to act. Listening to and making planetary music are among the most powerful free acts by which man can put his co-creatorship into practice. By drawing down planetary music, man is able to prevent illness, enhance health, and even avert deterministic influences of the heavenly bodies. Ficino's therapeutic planetary music, therefore, is a highly peculiar magical-Christian reinvention of the Platonic theory that music has the power to shape and condition the human body and soul. As such, his reconciliation of the perhaps theoretically irreconcilable elements of magic, astrology, and the Bible became a subject of vehement debate in later centuries.

3.6 Conclusion

The most important contribution of Ficino's *Compendium* to the tradition of the harmony of the spheres was the way in which he identified the perfect philosopher of nature who dissociates himself completely from actual sound in Plato's *Timaeus* with the creative practising musician-healer. Because Ficino as a philosopher of nature cherished religious, musical, magical, and astrological beliefs, which run through his scientific and religious theories in new and creative ways, he was able to open new roads, which in their turn led to new scholarly problems and questions.

The doctrine of the music of the spheres as expressed in Ficino's *Compendium* is a curious mixture of ancient Neoplatonic, medieval Christian, and innovative fifteenth-century ideas. At first sight, Ficino used the Timaean concept of 'world harmony' as a metaphorical concept that was acceptable to nearly all Christian writers and that easily fitted into the Christian interpretation of the biblical story of the Creation. For Ficino as a late medieval music theorist, from this point of view, the music of the spheres was taken as literally existent, and the biblical angelic choirs were fused with the Pythagorean planetary symphony originating from the *Timaeus*. Even if Ficino regarded the planets as beings with souls and bodies in a Platonic way, he could still look

upon them and their inaudible music as further testimony to the glory of the Christian God.

If we have a closer look, however, we can only conclude that where views derived from astrological and magical beliefs and practices entered Ficino's interpretation to such an extent that the planets were regarded as active deities, his conception of the harmony of the spheres must be judged highly ambiguous, as his literal reading of the creation narrative as presented at *Tim.* 35b–36b cannot be reconciled with Christian dogma. In addition, the way in which Ficino envisaged the music of the spheres as infused with supernatural powers which men could imitate in magical-musical practices was incompatible with Christian faith. In these cases, then, in the words of Haar (1960, 236), "orthodox Christianity shut its ears to the planetary Sirens, now more dangerous to a believer than they had been to Odysseus and his sailors". Even if Ficino himself maintained that Christian and Timaean theories of world harmony were variations on the same theme, we must conclude that he read the notes of the two different themes quite loosely in order to arrive at his interpretation.

Ficino aspired to formulate a single theory of world harmony in which the World-Soul, the human soul, and the spirit of music are perfectly amalgamated. Apparently, in his own mind, he did formulate a coherent philosophy of music. Nevertheless, substantial questions remain concerning the importance and consequences of his vision. For while the main consonances used in fifteenth-century earthly music may exemplify the harmonic principles of the World-Soul, which are also the foundation of the human soul, Ficino's *Compendium* never provides a detailed answer to the question of man's access to that core of harmonic principles and of the extent to which such access gives human beings the power to rule over and influence themselves, their fellow human beings, and the cosmos.

Never before in the tradition of the music of the spheres had the key to the secret of world harmony seemed so close at hand as in Ficino's philosophy of music. Nor had there ever been such optimism about man's creative opportunities to use music's power to increase the health and happiness of human beings and to ensure the salvation of their souls. The gap between divine and human music, which during the Middle Ages had been unbridgeable, seemed to have been bridged by Ficino's therapeutic planetary music. Regrettably, this optimism was based on the mistaken belief that the ancient Greek *harmoniai* were the same as the medieval church modes.

The emphasis on the eternal bliss of the immortal human soul in the hereafter as its true home, which was prominently present in medieval theories about world harmony, shifted in Ficino's theory towards the happiness and harmony of the human soul that could be acquired already during life on

earth. This emphasis on the here and now is reflected in the attention Ficino devotes to those parts of the *Timaeus* dealing with human physiology and the ways in which man can preserve, maintain, and enhance his physical and mental health. Within the realm of earthly music, moreover, Ficino's *Compendium* testifies to an increasing interest in physical aspects of sounds instead of the mathematical aspects of numbers used in Pythagorean speculative harmonics.

Ficino's specific view of musical *ethos* makes sense only against the backdrop of the all-embracing historical narrative of a *prisca theologia* that accounts for the nature of musical sounds and their relation with the harmonic design of the universe. The biblical assumption about man's status as God's creature, combined with the Hermetic assumption of divine man, inevitably led to a kind of historical, philosophical, and theological justification of those parts of the philosophy of music of Ficino's *Compendium* which purported to define how man uses, or should use, music. As Tomlinson (1993, 84–89) argued, Ficino, by embedding music theory in a story about the origin of man, for the first time in history had been able to bridge the gap between the doctrine of the music of the spheres and the doctrine of music's ethical influence on man. This may indeed be the case, but on the basis of the analysis of Ficino's model of the sense of hearing presented in this chapter, we must add that this feat was accomplished in the theoretical form of a self-fulfilling prophecy.

It is to Ficino's credit that he attempted to rediscover the 'lost' knowledge of the harmony of the human body and soul in his *Compendium*, and that he formulated an original theory about how man could become co-creator of his own harmonic nature. Yet different parts of this specific interpretation of the *Timaeus*, already controversial for contemporary readers, remained obscure for his sixteenth-century followers, such as Francesco Patrizi, and will probably always remain obscure or paradoxical for the majority of modern readers.

First of all, these conflicts and obscurities are caused by the way in which Ficino's *Compendium* combined a Neoplatonic theory of knowledge with his ideas about music's ethical power, religion, astrology, and magic. On the one hand, this peculiar interpretation of the relationship between music and knowledge provides Ficino with a plausible explanation of the harmonic composition of the human soul and its central place in the cosmos. On the other hand, it causes a certain tension between ideas about knowledge acquisition and music's influence on man, which were traditionally not framed in this way. The philosophy of music of Ficino's *Compendium* uncovers tensions between a theoretical, philosophical view of music as the key to knowledge of the universe and a practical, musical view of wisdom as a result of religious, astrological, and magical practices.

Implicit in Ficino's theory of music is the conviction that a proper understanding of earthly music, especially of a privileged set of Pythagorean consonances that refer through their special numerical structure to ideas in the supernatural realm, will yield true and essential knowledge about the harmonic design of the cosmos. For the present such knowledge could be hidden from human understanding, because man lacks the requisite spiritual qualities or skills to interpret music correctly. But the root of Ficino's theory remains the belief in the existence of a pure, archetypal harmonic language which the Creator used to 'sing the world into being'. This harmonic language is the key to all knowledge, which humans may unveil if only they can uncover its existence and, with the help of the activated memories of their divine origin, recognize it for what it truly is.

The activation of these memories, which are deeply hidden in the human soul, was conceived of as an act of willpower, imagination, and belief. Therefore, only someone like Ficino, who dedicated his whole life to the perfection of his own harmonic being, could uncover the original music of Creation and formulate principles for a music theory of earthly music in which these very same principles were imitated. He sincerely believed that through imitation in earthly music of the harmonic design by which the Creator had created the planetary circles, cosmic mysteries could be revealed. Therefore, he placed much emphasis in his *Compendium* on a specific kind of interpretation, spiritual growth, illumination, and revelation. Hence, his music philosophy is fundamentally esoteric in character.

By adding to the range of normal life experiences what was traditionally understood to be experienced after death as the soul ascended through the spheres, Ficino created an unsolvable paradox, which threatened the epistemological foundations of his view of world harmony. The perfection of the human being, seen during the Middle Ages as the grace of God, became in Ficino's epistemology a goal that was, in principle, within the reach of the human being. But because this knowledge could be gained only after a series of spiritual transformations that shifted perceptions of truth and falsehood, it was accessible only to initiates.

The most important instruments Ficino added to the methodological tools for obtaining knowledge of the universe were his additions to the Platonic identification of the human soul with the World-Soul, music, magic, and astrology. An ascent through the spheres or music therapy traditionally need not have led to magic and astrology at all. Yet the magical and astrological tools for knowledge acquisition, absent from medieval theories about cosmic harmony, became the keys to the universe in the philosophy of music of Ficino's *Compendium*. By combining a Neoplatonic music theory with religious, magical,

and astrological beliefs, sounds became forces within the context of religious and magical-astrological musical rituals. Although rooted in several religious musical traditions, Ficino's attempt to define a religiously inspired kind of musical magic drew upon traditions and ritual practices which were not compatible with Christian belief.

The consonances of the octave, fifth, and fourth, understood in a Neoplatonist way not just as imitations but also as real representations of the harmonic structure of the cosmos, were transformed in Ficino's music theory from passive entities, in which the key to the universe was preserved, into actual agents of magical, astrological, and religious practices through which the musician could use the powers of the planets and stars to transform himself and his audience, as well as the whole universe.

If we extrapolate Bono's (1995, 44) conclusion about Ficino's theory of language to his theory of music, we may argue that by linking a Neoplatonic theory of music to esoteric musical practices, Ficino created a tension between the Neoplatonic view of music as the science pre-eminently suitable for understanding cosmic order, and thus as the key to the universe, and the conflicting view in which music, and especially the main consonances of the Pythagorean tuning, became the direct means by which men could obtain the power of the planetary spheres for their own goals. The traditional medieval view empowered man to understand the cosmos and himself through a spiritual journey in search of self-knowledge and illumination. Ficino's view, in sharp contrast, relies on earthly music—especially the Pythagorean consonances—as forces of religious, astrological, and magical power, insofar as earthly music is considered to effect a desired manipulation of heavenly powers through its use in religious, astrological, and magical contexts. Ficino encouraged both views of how music might be useful to obtain knowledge of the cosmos. Even in his innovative thought on musical *ethos*, Ficino ultimately reverted to a supernatural explanation in which demons could directly imprint the liver with images of cosmic harmony.

The problem with this vision was not really its fusion of religious and cosmological ideas but rather the unclear place of the knowing subject in Ficino's epistemology. This problem was connected with his failure to distinguish between natural and spiritual and demonic magic, which I have discussed in chapter 2. Ultimately, then, Ficino's identification of the perfect philosopher of nature with the practising musician-healer is a result of what is positively indicated by Cassirer (1963, 132) as "the truly active moment of Ficino's Platonic cosmos" where "a dynamic motif penetrates the static complex of the universe". But rephrased in a negative way, by linking philosophy and musical practice in such a dynamic way, the subject and object of knowledge

cannot be distinguished anymore, and therefore, the scientific speculation of his *Compendium* is difficult to understand in terms of intersubjective scientific knowledge according to the standards of modern theories of knowledge.

We may now tentatively conclude that Ficino's *Compendium* for the most part reflects his view on *musica humana* and *musica instrumentalis* as expressed in other texts on the subject. It seems to have been the case that Ficino tried to play down the subject of demonology in his *Compendium* by relegating all chapters dealing with demons to the second part, the "Distinctiones". Although he tried in his *Compendium* and in his other writings to distance his own beliefs from unorthodox ones, Ficino's thought resurrects the possibility that sound and words may be used in incantations, magical and demonic rituals, and other 'suspect' practices.

Yet it could also be argued that the all-embracing magical 'physical' theory of cosmic sympathetic vibration was developed in order to replace his theory of demonic magic. Evidence of this development in his thought might be found in the fact that all the passages on demons were banished from the main text of his *Compendium* and ended up in the "Distinctiones". But this could also simply indicate that he removed them for external reasons, such as fear of censorship from the Catholic Church. Because Ficino's *Compendium* remained unfinished, we will probably always have to speculate about the precise relationship between Ficino's conceptions of demons and of cosmic sympathetic vibration within his philosophy of music.

Finally, the analysis of part one of this book, corroborates Max Weber's view that the conceptions of world harmony and music created by the "great musical experimenters of the Renaissance" such as Ficino "in a tremendous rational striving for new musical discoveries" (originating from the desire to revivify ancient Greek music) "and indeed for the purpose of giving musical form to 'passion', lay not in the impulse to artistic expression but rather in the technical means of expression".[248] The music-theoretical innovation, however, was that Ficino's re-discovered "ancient Greek" music did not result in the restoration of Pythagorean and Platonic tuning systems, but by accepting thirds and sixths as basic consonances in his theory furthered the dismissal of the Pythagorean tuning and the development of alternative tuning systems, which enabled an entirely new kind of musical expression.

Ficino's humanist appeal to Greek classicism in general, and to imitating the Pythagorean doctrine of the music of the spheres in earthly music in particular, was picked up and insistently repeated by subsequent writers. It seemed to offer writers on the philosophy of nature as well as on music, like Francesco

248 Weber 1949, 31.

Patrizi, a way forward out of the abstract and often obscure musical theorizing of the Middle Ages, as we shall see in chapter 4. In addition, in chapter 5 I will investigate how Ficino's musical practice became an example of recapturing the rational simplicity and melodiousness (supposedly the essential qualities of Greek music) that were gradually emerging as new ideals and that the new tonal harmonic structures seemed to offer a real possibility of achieving.[249]

249 See Walker 1958, 25–29; Ehrmann 1991; and Palisca 2006, 107–129.

PART 2

Francesco Patrizi (*1529–1597*)

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CHAPTER 4

From the Music of the Spheres to the Mathematization of Space

4.1 Introduction

The medieval Aristotelian-Ptolemaic view of the world remained dominant into the second half of the sixteenth century.[1] As we have seen in chapter 2, it is true that Marsilio Ficino's revival of Platonism and renewed interest in the *Timaeus* had undermined certain aspects of this medieval cosmology and had created a new interest in the mathematical and harmonic structure of the world. Nevertheless, Ficino's alternative Neoplatonic philosophy of nature had embraced the key features of the dominant Aristotelian-Ptolemaic view of the world: the finiteness and sphericity of the cosmos, the Earth as its unmoving centre, and, for the most part, the heterogeneity of and hierarchical relationship between the supralunar and sublunar worlds.

Having said that, the *Timaeus*, and in particular Ficino's interpretation of its cosmology, were influential during the sixteenth century in Italy despite the dominant Aristotelian scheme.[2] The dialogue was used in debates about the new cosmology envisioned by Copernicus's *De revolutionibus orbium coelestium libri sex* (*Six Books on the Revolutions of the Celestial Spheres*) of 1543, which proposed a new calculus of planetary motion based on several new astronomical hypotheses, among them heliocentrism and a mobile Earth.[3] The question of precisely how the influence of the *Timaeus*, and Ficino's interpretation of its cosmology manifested itself in individual cases, however, is often quite difficult to answer. First, this is due to the fact that much of the reflection on the concept of world harmony was written outside the genre of commentaries dedicated, like Ficino's, exclusively to the *Timaeus*. Second, given that Ficino's Latin translation of the *Timaeus* and his commentary were frequently used to study the dialogue, original Timaean concepts were often mistaken for biblical, Neoplatonic, and Aristotelian theories and ideas with which they had become fused in the *Compendium*. Third, even in cosmological texts from the sixteenth century onwards, where the *Timaeus* or Ficino's commentary on

1 Granada 2007, 270ff. The title of this chapter is inspired by Lachièze-Rey and Luminet 2001.

2 Röd 2000, 239.

3 Gouk 2002, 223. Hereafter, Copernicus's *De revolutionibus orbium coelestium libri sex* is abbreviated as *ROC* in the notes.

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it and the doctrine of the harmony of the spheres are not mentioned or discussed explicitly, Platonic and Pythagorean influence is often undeniable.

Even though it is widely accepted that the Platonic mathematical cosmology, as formulated in the *Timaeus*, has been quite an important incentive for the development of the modern scientific cosmology associated with the Scientific Revolution, this does not mean that there is a direct, unambiguous connection between ancient, medieval and early modern Timaean cosmology. As we have seen in chapter 2, this is partly because the Timaean explanations of the Creation of the world and its harmonic order are very difficult to understand, and perhaps on principle not even understandable as written.[4] In this chapter I will argue that after Ficino, the doctrine of world harmony could be transformed again into something compatible with late sixteenth-century philosophy of nature precisely because of its elusive and obscure character. More specifically, I will discuss how the mathematical cosmology belonging to the tradition of the harmony of the spheres, and Ficino's interpretation of the Timaean cosmogony in particular, were received and transformed in the philosophy of Francesco Patrizi (1529–1597).[5]

In a climate in which new cosmological and music theories were gradually emerging, Patrizi begins to question Aristotelian cosmology and Pythagorean music theory. He raises fundamental questions about the universe and music, their scientific basis in prevailing theories, and the presupposed relationship between cosmic order and music theory. In contrast to Ficino, who had always sought for a way to reconcile Plato and Aristotle, Patrizi aspires to re-establish cosmology and natural philosophy without Aristotle. As for Ficino, metaphysics and theology are fundamental components of Patrizi's philosophical system and reveal the cosmological and ontological principles from which his philosophy of nature derives. His most extensive account of world harmony appears in the final and perhaps most important of Patrizi's works, the *Nova de universis philosophia* (*New Philosophy of the Universe*; 1591), which he first published while he was a professor of Platonic philosophy at Ferrara.[6] The

4 Crombie 1962–1963 vol. II (1963) 199, 230.

5 For a general introduction to Patrizi's philosophy, see Kristeller 1964, 110–261; Schmitt 1981; and Hamesse and Fattori 2003. For an introduction to Patrizi's philosophy of nature, see Brickman 1941; and Rixner and Siber 1819–1826. For the relationship between Ficino and Patrizi, see Muccillo 1986.

6 Hereafter Patrizi's *Nova de universis philosophia* will be referred to as *NUP* in the notes. The *NUP* consists of four parts: (1) "Panaugia" ("All-Light"), (2) "Panarchia" ("All-Principle"), (3) "Pampsychia" ("All-Soul") and (4) "Pancosmia" ("All-Cosmos"); references will be made to one of these four parts, book, and folio (e.g., *NUP*1, I, 1^{r}).

work, as we read it in the two printed editions, shows a certain number of gaps, repetitions, and inconsistencies. As such, it reflects the enormous difficulty he experienced in making sense of the doctrine of cosmic harmony against the scholarly developments of the late sixteenth century.[7]

Patrizi's anti-Aristotelian philosophical programme already manifests itself clearly in his *Discussiones peripateticae* (*Peripatetic Discussions*; 1571–1581).[8] The critical discussion of Aristotle's philosophy in this work can be understood as a preamble to the construction of a new philosophy of the universe, one that will be built using alternative sources from the *prisca theologia*, among which will be the *Timaeus*.[9] In his *Discussiones peripateticae* Patrizi destroys, among other premises, the Peripatetic image of a perfect cosmology confirming Aristotle's theory of the world.[10] In this work he presents Aristotle as an unreliable disciple of Plato, who plagiarized all his valuable ideas about the universe from his great master, and whose own views undermine universal truths. To corroborate his point of view, Patrizi aims to demonstrate that the scientific cosmology so praised by Aristotle's followers is nothing more than a chimera. In his view, Aristotle destroyed the true vision of a harmonic cosmos, which was formulated by Zoroaster, Hermes Trismegistus, Orpheus, Pythagoras, and the Presocratics before Plato, which was then perfected by the Neoplatonists and rediscovered and revived by Ficino.

The subtitle of the *Nova philosophia* connects natural philosophy to its theological, metaphysical, and cosmological foundations by means of a combined deductive-inductive method, promising a new philosophy of the universe "in which by means of the Aristotelian method one ascends to the First Cause, not through motion, but rather through light and luminous bodies; now with Patrizi's own method, the entire Divinity offers itself to be contemplated, and finally the totality of things is deduced, by means of the Platonic method, from God the Creator".[11] The philosophical programme articulated in this subtitle

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7 For the textual history of the *NUP*, see Antonacci 1984, 108–109n22; Guerrini 1879; Muccillo 1997; and Puliafito 1993, esp. the introduction. The text of the second edition of the *NUP* (Venice: Roberto Meietti, 1593) is identical with that of the 1591 edition.

8 For Patrizi's *Discussiones peripateticae*, see, e.g., Deitz 1997, 2007; Kristeller 1964, 115–118; Leinkauf 1990; and Muccillo 2002.

9 For Patrizi's view of the *prisca theologia*, see Copenhaver and Schmitt 1992, 184–195; Leijenhorst 1998; Muccillo 1986a, 1996; Puliafito 2002; Purnell 1976; Schmitt 1966, 1970; Schuhmann 1992; Stausberg 1998; and Vasoli 1980, 1985, 1988a.

10 For Patrizi's critique of Aristotelian cosmology, see, e.g., Deitz 1997; Muccillo 2002; and Vasoli 1991, 1996, 1999.

11 *Nova De Universis Philosophia. In qua aristotelica methodo non per motum, sed per lucem, et lumina, ad primam causam ascenditur. Deinde propria Patricii methodo; Tota in*

responds faithfully to the agenda of restoring the *prisca theologia*, including the Platonic doctrine of world harmony, and offering it as a practicable alternative to Aristotelian philosophy. As a strategy to remedy the religious crisis of his time caused, in his mind, by so-called Aristotelian heresies, Patrizi proposes a return to the Timaean narrative of the Creation of a harmonic world; this, in his opinion, is consonant with the biblical Creation story and therefore also with Catholic faith.

At 4.2.1, I will show how Patrizi presented the doctrine of world harmony as part of a progamme to restore the original wisdom of the *prisca theologia*. At 4.2.2, moreover, I will address Patrizi's objections to Ficino's transformation of the doctrine of the harmony of the spheres into a magical-astrological theory that was at odds with both the Christian faith and the natural science of the late sixteenth century.

In the third section of this chapter, Patrizi's revision of the traditional theory of the four mathematical disciplines will be presented. The mathematization of the world picture has been regarded as a characteristic feature of the Scientific Revolution by the very scholars who first recognized and described this historical and historiographical phenomenon, but it has been particularly emphasized in recent historiography.[12] Much of the recent work on the role of mathematics in the Scientific Revolution has followed from suggestions by Rose (1975) and Westman (1977, 1980) about the changing intellectual status of mathematics and the concomitant changing social status of mathematicians in the disciplinary hierarchies of the pre-modern period. Rose has revealed the unexpectedly high level of interest in mathematics among Renaissance humanists, while Westman has pointed to the increased confidence in mathematical realism—that is, the belief that mathematics can be used to understand the way the world really is—among astronomers and other professional mathematicians. By analysing the critical way in which Patrizi dealt with Pythagorean and Euclidean mathematical ideas in the fourth part of his *Nova de universis philosophia*, I aim to evaluate Patrizi's contribution to the mathematization of the world picture.

At 4.3.1, I will demonstrate how Patrizi demolishes the Pythagorean belief in the primacy of number to formulate a new mathematical cosmology. At 4.3.2, I will argue that in order to save the Pythagorean doctrine postulating world harmony, Patrizi is compelled to abandon the belief in a universe ordered by

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contemplationem venit Divinitas: Postremo methodo Platonica, rerum universitas, a conditore Deo deducitur. NUP [Title page], 1r. For the preface of the NUP, see Deitz 1999, 139–140; and Vasoli 2004. For Patrizi's light metaphysics, see Puliafito 2002a.

12 See Dear 1995, 11–31; 2001, 29–46; and Shapin 1996, esp. 179–181.

the same numerical proportions that produce harmonies in earthly music. Consequently, Patrizi's philosophy contributes to the development of a new mathematical conception of the universe, which discards musical technical terms and images. In addition, Patrizi's conception of geometry is presented here as an alternative to the Pythagorean doctrine of a direct relationship between number and musical sound.

Furthermore, the question of whether the doctrine of world harmony acted as an obstacle to or an incentive for the birth of science associated with the Scientific Revolution will be reassessed. In order to find an answer to this question, at 4.3.4 I will study Patrizi's reception of Copernicus and the reasons why he fails to appreciate the utility of Copernicus's ideas for challenging the Aristotelian representation of the universe. In addition, I will examine how the appearance of several 'celestial novelties' such as novas and comets helps Patrizi to deconstruct the Aristotelian doctrines of solid planetary spheres and the immutability of the heavens. I will investigate how, in order to save these appearances, Patrizi reintroduces ancient ideas from the tradition of the harmony of the spheres.

In the fourth section of this chapter Patrizi's late sixteenth-century interpretation of the harmony of the spheres will be presented. First, at 4.4.1, I will discuss his interpretative difficulties concerning the traditional concept of the harmonic structure of the World-Soul, which he inherited from predecessors such as Ficino. Subsequently, at 4.4.2, I will deal with his reception of Ficino's theory of cosmic harmonizing powers explaining force, motion, and the interconnection of all the parts of the world.

It has been often argued that the revival of Platonism during the Renaissance stimulated the development of a new scientific methodology associated with the Scientific Revolution, supposedly creating a watershed between the medieval philosophy of nature, interlaced with Pythagorean numerology and music theory, and scientific physics and mathematics.[13] At 4.4.2., however, Patrizi's philosophy of nature will be presented as a counterexample to this narrative by arguing that Patrizi, like Plato and Ficino before him, is still predominantly interested in a metaphysical interpretation of nature in terms of world harmony, and that he deals with natural causes exclusively as foundational principles of the geometric Creation. In this sense, his Platonism even prevented the development of a new scientific methodology to a certain extent, for only by replacing this Platonic geometric methodological view with a natural scientific view (in

13 Copenhaver and Schmitt 1992, 194.

which effects are deduced from causes, and not vice versa) could nature supersede authority in a theory of cosmic order.[14]

Finally, Patrizi's debate with a member of the Sacred Congregation of the Index of Forbidden Books on the harmonic design of God's Creation will be analysed. For quite some time now, history of science textbooks have often argued that science had to break free from the trammels of religion during the sixteenth century and later.[15] My discussion of the debate between Patrizi and a member of the Sacred Congregation of the Index of Forbidden Books, at 4.4.3, offers an alternative to this dominant narrative. I argue that scientific progress was sometimes furthered by the fact that philosophers such as Patrizi had to defend their views against accusations of heresy. Criticism by the church inspired him not only to study the biblical Creation story in further detail but also to find corroborating evidence for the doctrine of world harmony in the observation of nature.

The change in methodological focus manifests itself most prominently in Patrizi's account of the discipline of music theory, where a transformation takes place from thinking in terms of numbers to thinking in terms of sound (4.3.2.). Building on and further developing this finding, at 4.5, I will come to the paradoxical conclusion that for Patrizi the tradition of the harmony of the spheres, and music theory in particular, created both an impediment and an incentive for the birth of a new science.

4.2 The Reception of Ficino's Interpretation of the Notion of Pythagorean World Harmony

4.2.1 *An Elaboration of the Myth of the* Prisca Theologia

Patrizi studied at the University of Padua, where he became familiar with the mainstream Aristotelianism of his time. In an autobiographical letter of 1587, the philosopher describes how he met a Franciscan friar who introduced him to Ficino's radically different *Theologia Platonica*:[16]

14 See Röd 2000, 250–253.

15 For the literature constituting the 'great tradition' in the history of science, see Shapin 1996, 168–170.

16 Kristeller 1964, 116. The accounts of Patrizi's life rely mainly upon remarks scattered throughout his works and one autobiographical letter, dated 12 January 1587, which is addressed to Baccio Valori. For Patrizi's life, see Deitz 2007, 114n2; Kristeller 1964, 110–126; Solerti 1884–1886; and Vasoli 1989.

> when he [i.e., Patrizi] heard a Franciscan friar teaching Platonic deductions, he fell in love with them, and subsequently he became friends with him when he asked him if he could send him down Plato's path. As the optimal guide, [the friar] proposed the *Theologia* [*Platonica*] of Ficino, to which he [Patrizi] dedicated himself with great eagerness. And this became the beginning of that study which he has followed ever afterwards.[17]

Clearly, Ficino's *Theologia Platonica* made such a deep impression on Patrizi that it converted him to Platonism and the *prisca theologia*, to which he would remain faithful for the rest of his life. Throughout his whole academic career, Patrizi tried to preserve the metaphysical and theological character of Ficino's cosmology and to apply it to his own time in order to remedy the crisis of contemporary Christianity. Tellingly, in many of his texts, Patrizi frequently referred to the *Timaeus*, a dialogue which he believed to exemplify the great value of Platonic philosophy. In various places Patrizi quoted the *Timaeus*, and from both a few explicit references to Ficino's *Compendium* and the Latin he uses, it can be inferred that he was familiar with Ficino's Latin translation of the dialogue and the accompanying commentary.[18]

The historic narrative of a *prisca theologia* continues to be one of the key notions in Patrizi's cosmology, as in the dedicatory epistle of his *Nova philosophia*, where Patrizi claims that his theory of cosmic order is founded on "divine prophecies, geometrical necessities, philosophical reason, and conclusive experiments".[19] In this epistle, addressed to Pope Gregory XIV, Patrizi expresses his dissatisfaction with the fact that in all the schools and monasteries of Europe, Aristotle still enjoys unchallenged authority, even though his philosophy is heretical, for it deprives God of his Omnipotence as well as of his Providence.[20] As an alternative to Aristotelian philosophy, Patrizi offers Ficino's narrative framework of a *prisca theologia* in which sages like Pythagoras and

17 *. . . sentendo uno frate di San Francesco sostener conclusioni platoniche, se ne innamorò e fatto poi seco amicizia dimandogli che lo inviasse per la via di Platone. Gli propose come per via ottima la teologia del Ficino, a che si diede con grande avidità. E tale fu il principio di quello studio che poi sempre ha seguito*. Patrizi 1975, 47.

18 Etienne 1998, 6–9.

19 *NUP*1, [Title page], 1r. "Divine prophecies" refers to Zoroastrian, Hermetic, and Orphic teachings belonging to the tradition of the *prisca theologia*.

20 *NUP*, [Ad Gregorium XIIII], IIIv. Niccolò Sfondrato (1535–1591), whom Patrizi had met when they were both students at Padua, became Pope Gregory XIV.

Plato have a prominent place.[21] Hence, under the changed scientific conditions of the second half of the sixteenth century, the *prisca theologia* continues to provide Patrizi with a justification for using—alongside the Bible—ancient Greek cosmological sources for his philosophical investigations. In broad outline, Patrizi upholds Ficino's narrative of a chronological line of sages in possession of perennial wisdom about the world:

> And so it has been handed down by the most outstanding, most wise, and most ancient men—Zoroaster and Hermes, as well as the Greeks, Orpheus, Pythagoras, the Pythagoreans, and Plato—as most ancient dogma: namely, that the world has a Soul.[22]

Fully in line with the sages of the doctrine of the harmony of the spheres, Patrizi is convinced that the world has a harmonizing Soul. Just like Ficino, Patrizi holds that the older a doctrine, and the greater the number of theologians and philosophers who have defended it, the less likely it is to be wrong.[23] Still, Patrizi shows an emerging independent attitude towards authorities, which has repercussions in the way in which he interprets, for example, eternal truths about the harmonic structure of the World-Soul (*Tim.* 35b–36b), as will be analysed in further detail below at 4.4.

In the first place, Patrizi adopts Ficino's view that the cosmogonic myth of the *Timaeus* is fully in line with the biblical Creation story. This is in fact the foundation of his claim that studying ancient texts such as the *Timaeus* will be instrumental in convincing the heathens of the truth of the Christian faith. He argues that the study of Plato will even bring the Protestants back into the Roman Catholic Church in a peaceful way, because Plato's dialogues are ultimately based on a universal form of human reason.[24] For the discovery of universal truths about the universe, he especially recommends the study of certain dialogues of Plato:

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21 For the place of the *prisca theologia* in sixteenth-century music theory, see Gozza 1990, 217–238.

22 *Itaque a praestantissimis sapientibus, atque vetustissimis, Zoroastre, Hermete, et Graecis Orpheo, Pythagora, Pythagoreis, Platone, vetustissimo dogmate traditum est, mundum esse animatum.* *NUP*3, IV, 55^{r}.

23 In light of new philological and historical discoveries in his time, Patrizi is sometimes compelled to adapt Ficino's version of a *prisca theologia*. He introduces, for example, a second Hermes Trismegistus, because otherwise Hermes would have lived far beyond an average human lifespan. See Stausberg 1998, 291–304.

24 *NUP*, [Ad Gregorium XIIII], II^{v}, III^{r}.

> Among the works of Plato there are many dialogues which, without any danger of impiety and with much benefit in piety, may be taught publicly: the *Philebus, Timaeus, Sophist, Parmenides*, and *Phaedo*.[25]

Patrizi's request to include his *Nova philosophia* in the curriculum of all schools and monasteries under papal jurisdiction seems to have had some initial success. In 1592 Pope Clement VIII called Patrizi to the newly created chair of Platonist philosophy at the Sapienza University in Rome in order to teach Plato's *Timaeus*:[26] "Soon I began to explain Plato's *Timaeus* publicly to a capacity audience in the most famous school of the whole world".[27] Given the lack of documentation about what went on in the classroom, it is impossible to know precisely what Patrizi taught about the *Timaeus* or whether the doctrine of the harmony of the spheres had any importance in his teaching. However, close reading of the *Nova philosophia* suggests that especially *Tim.* 35b–36b (on the structure of the World-Soul) and *Tim.* 50c–51b (on space) were of great importance in formulating his natural philosophy. In what follows I will discuss his reception of the tradition of the harmony of the spheres, his own interpretation of these two Timaean passages, and the way in which he tries to connect these two passages in his philosophy of the universe.

Following Ficino, Patrizi conceives of the world of nature as divinely caused and rationally ordered. He is still convinced that it has a Soul and that its structure can be reduced to a number of rational principles. Ficino, in his time, had been convinced that he had unveiled almost all the eternal truths that Plato's *Timaeus* disclosed concerning the harmonic structure of the World-Soul. Yet many questions appear in Patrizi's texts about the interpretation of the elusive Timaean concept of world harmony.

In order to answer these questions, first of all, Patrizi tries, from his late sixteenth-century philological point of view, to establish the precise order of Plato's dialogues, in the belief that this will ultimately lead to a better understanding of the original Plato. Patrizi's *Nova philosophia* presents his 'scientific'

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25 *Sunt apud Platonem multi dialogi, qui sine impietatis periculo ullo, pietatis adiumento multo, publice doceri possint: Philebus, Timaeus, Sophista, Parmenides, Phaedo.* NUP, [Ad Gregorium XIIII], II^{v}.

26 Firpo 1951, 164. This period in Patrizi's life is well documented. Patrizi's *Declarationes* (Biblioteca Apostolica Vaticana, cod. Barberin.lat. 318) refers to letters written in October and November 1591 by his fellow student Aldobrandini, who became Pope Clement VIII in 1592.

27 *Mox Platonis Timaeum publice in hoc totius orbis celeberrimo gymnasio frequentissimo auditorio coepi exponere*. Patrizi, *Declarationes*, 1^{r}.

ordering of Plato's dialogues accompanied by a list of the most important commentaries on several of them.[28] Along with the commentaries by Proclus and Calcidius, Ficino's *Compendium in Timaeum* is recommended as useful for an understanding of the original dialogue:

> To continue the discussion, this dialogue [i.e., the *Republic*] is followed by the *Timaeus*, which is written in order to explain how God created the world and its parts. And it explains many things about the Deity. And he [i.e., Plato] has made use of everything that was revealed by Timaeus Locrus the Pythagorean,[29] expanding it with his divine eloquence, changing or removing and adding what seemed to him to be closer to the truth. And there are commentaries by Proclus, Calcidius, and Ficino.[30]

If we take a closer look at how Patrizi deals with Ficino's *Timaeus* commentary, it becomes clear that he is above all interested in its interpretation of the functioning and transformation of the world of nature. To appreciate the natural philosophical speculations of the commentary, he deems it of the utmost importance to criticize the, to his mind, unscholarly astrological, magical, and musical ideas, which have contaminated the venerable doctrine of the harmony of the spheres. Let's have a look at Patrizi's critique of Ficino's conception of world harmony now.

4.2.2 *Critique of Ficino's Interpretation of the Harmony of the Spheres*

As we have seen in chapter 2, Ficino's *Compendium* declares that world harmony manifests itself on the level of the World-Soul, on the level of the body of the world, and on the level of spirit in between the cosmic body and soul. In his commentary, he defined 'Soul' as the principle of order, movement,

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28 For this new order, see *NUP*, "Mystica Aegyptiorum et Caldaeorum" (appendix), "De Dialogorum Ordine", 44^{v}, in Patrizi 1975, 186ff. Hereafter, this appendix will be referred to as *NUP*, "Mystica".

29 Like Ficino, Patrizi believes that Timaeus of Locri was a source for Plato's *Timaeus*. In the list of authors in the *NUP*, Patrizi makes a distinction between "Timaeus historicus" and "Timaeus Locrus", and he uses both sources in his philosophy, often mediated by Ficino's writings. In his discussion of the World-Soul in the "Pampsychia", the work of Timaeus Locrus and Plato's *Timaeus* occupy an important place.

30 *A questo per continuazione di disputa e congiunto il Timeo, che ha lo scopo di mostrare come da Dio il mondo e le sue parti sia stato prodotto. E molte cose della divinità dichiara. E l'ha tutto levato da Timeo Locro Pitagorico, ampliando però con la sua divina eloquenza, mutando, o levando e aggiungendo ciò che gli è paruto poter essere più vero. E vi sono i commenti di Proclo, di Calcidio e Ficino*. Patrizi 1975, 186.

and knowledge in the world. Yet, just as 'Soul' was defined in different ways in several Platonic dialogues, Ficino was not always consistent in his definition. Furthermore, even though the image of the cosmic lyre acquired an important place in his *Compendium*, he never explained that instrument's precise ontological and epistemological status. In his *Theologia Platonica*, however, Ficino discussed the relationships between harmony of the Soul and harmony of the body in further detail. In this book, he explained that harmony must not be seen as a tuning of the body, though this was believed by many Pythagorean music theorists:[31]

> Nor can we dream with Aristoxenus and other music theorists that Soul is a kind of harmony born from the complexion [of a body]. For in that case, similarly, Soul would be an accident, not a substance. Surely, harmony derives all its force from the lyre? It has no independent existence whatsoever and is incapable of having any effect at all on the strings. Harmony does not move the strings itself but emerges only when the strings have been set in motion from elsewhere. So if Soul were a harmony of the humours arranged in a particular way, it would be totally dependent on them.[32]

Patrizi adopts and endorses Ficino's interpretation of Soul as the cause of the harmonic tuning of the world. In the *Mystica Aegyptiorum et Caldaeorum* (*Mystical Egyptian and Chaldean Writings*)—an appendix to the *Nova philosophia*—Patrizi paraphrases a quotation from Ficino's *Theologia Platonica* as follows:

> Some belonging to the Pythagorean sect said that the composition of the body is like the composition of the lyre. Thus, just as the lyre allows harmony (if the strings of the perfectly made lyre are tensioned in proportion) when the lyre player strums, so in fact the true makeup of the whole

31 Aristoxenus of Tarentum (fl. c. 335 BCE) was an important music theorist with Pythagorean interests and was also one of Aristotle's pupils. Yet it is Cicero in his *Tusculanae* 1.10.19–20 (Cicero 1966, 19–20) who tells us that Aristoxenus regarded the soul as a "tuning" (*intentio* or *harmonia*) of the body, a Pythagorean argument that is discussed at length in Plato's *Phaedo* at 85e–86d and 91c–95a. For Ficino's discussion of these passages, which Patrizi might have known, see *CiT* XXVIII, 68^{r} and *TP* V.XV.6, in Ficino 2001–2006, 2 (2002): 107–109.

32 Ficino, *TP* VII.X., in Ficino 2001–2006, 2 (2002): 249. Translation modified.

> body results from balanced humours, and by this the [World-]Soul is described.[33]

Fully in line with Plato's *Phaedo* 85e–86d and 91c–95a, Ficino and Patrizi share the opinion that harmony is not a tuning of the body but something that originates from God, the Creator of the harmonic structure of the World-Soul. This conviction did not prevent Ficino, however, from imagining the cosmos as a cosmic lyre and conceiving of cosmic interplay between different parts of the cosmos in terms of sympathetic vibration.[34] Patrizi, using the same argument, declares by contrast that it is absurd to imagine the cosmos as a corporeal object like a lyre, and the interaction of its parts as caused by the physical parts of the instrument themselves. Therefore, he decides to "respond at length in disproving this":

> Just as the composition of strings which follows the harmony of a musical instrument arises not from itself but from the musician [playing a stringed instrument] (in fact, the strings are put together and do not put themselves together, an operation which is ignoble), so, too, if the Soul were to be the composition of the body, since this would arise out of the body, it follows that the Soul would come to be out of some not-Soul, and that entities would be prior to each other only in comparison. But form [in matter] is not produced without some Soul to shape it; otherwise, it would happen by chance, which is impossible for particular and general things. Thus, the Soul is not [equal to] the complexion of the body.[35]

Given the ontological priority of Soul over body, Patrizi argues, it is simply wrong to think that Soul derives something from body. Therefore, arguing that the physical cosmos is the cause of its harmony is as preposterous as arguing that the instrument of a musician is the cause of his harmonious music.

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33 *Pythagoricae etenim sectae quidam dixerunt, quod compositio corporis est similis compositioni cytharae. Quandoquidem sicut* (*chordis cytharae rectae secundumque proportionem tensis*) *cythara admittit harmoniam, cytharedo pulsante. Ita etiam humoribus comtemperatis resultat corporis totius complexio vera, per quam anima describitur.* NUP, "Mystica", 9^{v}.

34 Ficino, *CiT* XXXII, 72^{r}. For Ficino's theory of cosmic sympathetic vibration, see 2.5.2.

35 *Sicut etiam compositio cordarum quam sequitur concentus organi musici, non sit a seipsa, sed a musico. Cordae siquidem componuntur, non autem se componunt, quae est operatio ignobilis. Similiter si anima sit compositio corporis, cum haec fiat a corpore, sequitur quod anima fiat a non anima, quodque entia sint inter se priora comparatu solo, non producitur autem forma absque anima formatrice, alioquin fieret a casu, quod est impossibile rebus particularibus universalibusque. Anima itaque non est compositio corporis.* NUP, "Mystica", 10^{r}.

Consequently, in contrast with Ficino, he concludes that it is better to abandon the musical metaphor of the cosmic lyre altogether as a description of the cosmos, because it leads to all kinds of absurdities.

In order to restore the original Pythagorean doctrine of world harmony, Patrizi not only rejects the use of the anthropomorphic projections and musical metaphors which had crept into the commentary tradition, such as the image of the cosmic lyre, but also criticizes Ficino's astrological and magical musical practices, which were built on the concept of cosmic sympathetic vibration. As we have seen at 2.5.2, Ficino adopted the view of scholars like Plotinus and al-Kindi of a real existing 'music' of the universe, by which the movements of the upper world ensure the perpetual generation of sublunar things through the principle of sympathetic vibration. As he is aiming at a strictly scientific theory of the universe, Patrizi tries to purge the tradition of the harmony of the spheres from this mixture of allegorical, magical, and astrological vocabulary, rediscovered and revived by Ficino.

While at the beginning of his career Patrizi recommended the study of Ficino's *Timaeus* commentary as a guide to the original dialogue, his subsequent relationship with his famous predecessor became more complex. Ficino's magical-astrological interpretation of the doctrine of the harmony of the spheres had become highly influential during the sixteenth century. Ficino had been drawn to a magical position because it seemed more compatible with religion than a strictly natural philosophical explanation of the cosmos. By contrast, Patrizi considers that positing a relationship between world harmony, on the one hand, and astrology and magic, on the other, is a serious philosophical flaw. Ficino's spiritual magic and astrology were indeed compatible with theories about divine intervention and God's free will. Yet according to Patrizi, magic and other, related ideas are dangerous and false precisely because they are so closely associated with religion.

Although magic was an essential component of the philosophy of the Persian Magi, Orpheus, Plotinus, and Proclus (i.e., *prisci theologi* already considered to possess a kind of divine wisdom before the Judaeo-Christian tradition came into being), it was, in Patrizi's opinion, easily misused. Whereas Ficino had been convinced that natural or spiritual magic was in line with Christian faith, Patrizi builds his contrary view on the fact that magic is reproved in many places in the Bible and is vehemently attacked in his own time by the church. Given that Ficino's naturalistic and spiritual magic could not be distinguished from other kinds of magic, associated with tricks and illusions, Patrizi dismisses it altogether in his *Nova philosophia*.

In contrast to the strictly deterministic naturalist view of the universe, Ficino's magic was based on a Christian conception of divine and human free

will, which I have discussed in chapter 3.[36] In fact, Ficino formulated his astrological-magical interpretation of the music of the spheres in order to explain how man can discover the stellar influences on his life and direct them for his own benefit or, if necessary, take steps to counteract them. Yet whereas Ficino recommended such practices, Patrizi criticizes them because he does not believe that music produces certain effects on an individual that depends on the constellations with which it is associated.

Ficino's account of the harmony of the spheres was built on the belief that all things on Earth and all earthly phenomena had special sympathetic relationships with heavenly bodies, thanks to cosmic sympathetic vibration. Ficino's theory of cosmic harmonizing powers, discussed at 2.5.2, in fact remains one of Patrizi's most central cosmological beliefs. As he declares, the pure, mathematically determined nature of celestial harmony is imitated in a more or less corrupted form on Earth:

> It is said that God did not make the stars in vain. . . . But they act outside themselves, as far as they are able to cast their rays, and with the rays also the powers of the seeds by which they reciprocally nourish each other and favour each other and agree with each other, and they breathe good things into the whole, and with the goodness (given them by the Creator) they breathe through all things and so conspire to one end that all things sound together and perform that harmony of the divine Maker.[37]

In contrast to Ficino, however, Patrizi is not interested at all in obtaining beneficial influences from the heavens through music. In defending his adherence to astrological concepts that were often associated with the doctrine of the harmony of the spheres, he distinguishes between religious astrology as a kind of natural science and astrological practices that he rejects as superstitious. His own philosophy of the universe, Patrizi argues, has nothing to do with the unscientific practices of some of his predecessors and contemporaries, such as

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36 For Ficino's interpretation of Pico's famous theory of the dignity and freedom of man, see 3.3.1.

37 *Dictat enim, Deum stellas non frustra fecisse. . . . Extra vero se, agant procul, quam procul lumina sua iacere possunt: et cum luminibus etiam seminum vires, quibus se se mutuo foveant, et sibi mutuo faveant, et inter se invicem conspirent, et sibi invicem, et toti, bona inspirent, et bonitate, sibi a Conditore data, omnia perspirent, et in unum ita conspirent, ut harmoniam illam divini artificis, omnia consonent, et personent.* NUP4, XXI, 116^{v}. Translation Brickman (1941) modified.

predicting the future.[38] Ignoring problematic and ambiguous aspects of their astrological theories, Patrizi praises Plotinus, Ficino, and Pico for their natural philosophical view of astrology:[39]

> And among them [i.e., Platonists interested in astrology] Plotinus seems to have been the leading light, chief of the Platonists at the time. After him, two great men, Marsilio Ficino and Giovanni Pico [della Mirandola], were regarded as having the greatest powers of intellect among these astrological seers. But among these confutations Plotinus put his greatest effort into [demonstrating] that future events can indeed be represented by the planets but cannot be brought about by them. And he [i.e., Plotinus] has divided his whole discussion into three topics in particular: it is evident that the planets cannot take away or grant riches or poverty or the various good or bad turns of fortune; they cannot engender good or bad health in human bodies; [and] they can even less introduce into the mind wicked or honourable thoughts or vices or virtues. All these things astronomers used to attribute to the planets, and they still do so today. And they do this because some of the planets are bad by nature, such as Saturn and Mars; others are good, [such as] Jupiter and Venus; and still others are neither, [such as] the Sun, Mercury, and the Moon.[40]

Evidently, Patrizi is here referring to Pico's criticism of astrology as expressed in his *Disputationes* (*Disputations*; 1493).[41] In the sixteenth century Pico's *Disputationes* forced many scholars to rethink the validity of the use of astrology in the sciences and arts. In line with Pico and Ficino, Patrizi demonstrates

38 Patrizi's criticism of Ficino's astrology is in line with the Renaissance criticism of astrology discussed in Garin 1990, 90–98, 105–106.

39 For Ficino's and Pico's view of astrology, see Garin 1990, 56ff., 83ff.

40 *Inter quos, praecipuus videtur Plotinus fuisse, Platonicorum eo tempore praecipuus. Quem postea, viri magni duo Marsilius Ficinus, et Ioannes Picus. Qui maximis ingenii viribus, in Astrologos hosce divinatores, sunt inventi. Sed his confutationibus in id maxime incubuit Plotinus, ut significari quidem a planetis posse futura concederet, fieri tamen non concederet. Atque in tria praecipue capita, omnem hanc suam disputationem est partitus. Nimirum. Non posse planetas, vel divitias, vel inopiam, aut alia fortunae vel bona vel mala, aut adimere, aut largiri. Non posse, in corporibus humanis, prosperam adversamve ingenerare valetudinem. Multo minus posse, animo turpia, aut honesta, aut vitia, aut virtutes indere. Quae omnia planetis Astrologi, et tunc tribuebant, et nunc etiam tribuunt. Idque propterea quod, ipsorum alii natura sunt mali, ut Saturnus et Mars. Boni alii, Iupiter et Venus. Neutri, Sol Mercurius, et Luna.* NUP4, XXI, 115r.

41 Pico della Mirandola 1946–1952.

his awareness of the incompatibility of astrological determinism with the Christian belief in God's Omnipotence and absolute free Will. In Patrizi's opinion, God is always able to interfere with His Creation, and therefore, cosmic order can be determined only to a certain extent. There is, moreover, another danger in astrological and magical practices: they pass over the fact that God granted man free will, and hence, it is his choice as to how he lives his life.

Having rethought the validity of the use of astrology, Patrizi defends Ficino's belief that the heavenly circuit ensures the perpetual generation of sublunar things through the cosmic power of sympathy. He declares that he does not believe that

> everything derives from anything, but [he believes] that only specific parts of the universe derive from one another, and this through [the power of] *sumpnoia*—that is, harmony and sympathy between the parts of the world. These things Plotinus dealt with.[42] Ficino, however, expanded this Plotinian theory in greater detail and with great eloquence. Pico [della Mirandola], albeit broadly, imitated both: he tried to revolutionize the art of astrology and its epistemological foundation entirely. They did not achieve their aim, since there are still many people who want to be astrologers, and many will exist in the future, such is the desire for foreknowledge of the future in human souls. But let us dismiss those astrologers and their followers and devotees. Let us make our case. The question has been proposed to us whether the stars are acting in a particular way. This is more universally the case, and their action is not limited to men alone, as these three great men have emphasized, that is, [they questioned] that the stars only take care of men, or [that they] have any good or bad influence on them alone.[43]

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42 Plotinus, *Ennead* 3.1, For Ficino's interpretation of this Plotinian concept, see 2.5.2.

43 *Neque quodlibet a quolibet, sed hoc ab illo tantum, atque ita deinceps, ex communi scilicet mundanarum partiu σύμπνοια conspiratione, et sympathia. Haec Plotinus, Ficinus vero, Plotini sensa latius ex posuit, et facundius est persecutus. Utrosque imitatus est Io. Picus, sed latissime, tum artem Astrologicam, tum eius et fundamenta, et rationes omnes funditus evertere est conatus. Non tamen effecerunt, quin adhuc innumeri, velint esse Astrologi, sintque in futurum extituri. Tanta est animis humanis insita, futura praesciendi aviditas. Sed Astrologos istos, et eorum tum osores, tum amatores missos faciamus. Rem nos nostram agamus. Quaestio est nobis proposita, utrum stellae aliquid agant. Haec quidem universalior est, quam ut ad homines solos, uti hi tres magni fecere viri, redigatur. An scilicet stellae, hominum tantum, vel curam gerant, vel ipsis solis boni, vel mali influant aliquid.* NUP4, XXI, 115^{v}.

Even though Ficino, Plotinus, and Pico are praised because they emphasized the presence of harmonizing powers in the cosmos, the sting is in the tail of this passage. By stressing that astral influences are universal cosmic powers, which are indifferent to human fate, Patrizi indirectly criticizes Ficino's belief that beneficial influences from the Sun and other heavenly bodies can be obtained through music. Hence, he deconstructs Ficino's major contribution to the tradition of the harmony of the spheres. In Patrizi's account of world harmony there is no place for astrological-musical practices that aim to discover the stellar influences on an individual's life and to take steps to counteract them.

To recapitulate, Patrizi adopts Ficino's view of world harmony in part, but he discards the total identification of music and philosophy in the interpretation of his predecessor. Many of Ficino's interpretative strategies to reconcile musical practice and philosophy are deemed unsuitable for a new, scientific philosophy of the universe. Patrizi clearly has abandoned Ficino's literal belief in the existence of the music of the spheres and his peculiar magical-astrological interpretation of this doctrine. In Patrizi's new philosophy of the universe, there is no longer any place for anthropomorphic projections and musical metaphors. Let's have a look now at how this demolition is supported by a revision of the traditional theory of the four mathematical disciplines.

4.3 A Revision of the Traditional Theory of the Four Mathematical Disciplines

Readers of the *Timaeus* throughout the centuries have considered Plato's cosmology to be one of the first examples of the mathematization of nature, since it provides, for the first time, a mathematical model to explain the structure of the universe. The notion of 'mathematization' in this context, however, is ambiguous.[44] As Martijn (2000, 168) explains, in the philosophy of science, the term is associated with two rather different positions: the realist and the instrumentalist attitude towards the explanatory power of mathematics. The scientific realist holds that scientific explanations should be and are about the world as it is, whereas the instrumentalist claims no more than that his scientific explanations have a certain explanatory power and allow the prediction of phenomena. Within the exegesis of the *Timaeus* in general, these two views can be related to the literal and the metaphorical reading of the dialogue in the following way: those who maintain a literal reading of the dialogue tend to hold to a realist mathematization, whereas those who see the *Timaeus* as

44 See Martijn 2000, 168–172.

a metaphor, or as riddled with metaphors, often hold that the mathematical conceptions in the dialogue are conventional rather than natural in character.

In Patrizi's philosophy, the influence of the tradition of the harmony of the spheres, and the *Timaean* cosmogonic narrative in particular, manifests itself above all in the hypothesis that reality itself possesses mathematical form. Just like Plato and Ficino before him, Patrizi is a mathematical realist in his philosophy of nature.[45] Thus, as regards cosmic order, he holds that mathematical conceptions are obtained through the realization of innate ideas which reflect the essential structure of reality. However, regarding music theory, he is a mathematical instrumentalist. In the context of his aesthetics, he holds that mathematical conceptions are obtained through abstraction and idealization of observational sounds, which are not themselves structured according to mathematical law. As a result, the epistemological foundation of his theory of world harmony is ambiguous. Following Vickers (1984), I deal with Patrizi's philosophy in terms of a combination of occult and scientific mentalities, which was typical for Renaissance philosophy. In this section, I will analyse the consequences of Patrizi's combined realist and instrumentalist attitude for the doctrine of the harmony of the spheres.

Just like Plato and Ficino before him, Patrizi believes that God has subjected nature to mathematical laws and that he has endowed human beings with the innate power to understand these laws. Patrizi is also convinced that the cosmos is a manifestation of harmonic proportions. He has great confidence in the human ability to understand its geometrical structure and to fathom the harmony of the world, not only by rational thinking but also by divine revelation.[46] This does not imply, however, that he has a purely deductive philosophy of nature in mind, like that of Plato and Ficino. Even though Patrizi conceives of scientific theory as a plan in the human mind, at the same time he emphasizes that natural philosophical conceptions must be validated through experience in experiments. Only then can they qualify as adequate accounts of reality. Patrizi's notion of a 'scientific experiment', however, differs significantly from what physicists and philosophers of nature after him came to understand by the term.[47]

The questions of what mathematics is and how mathematical knowledge is acquired are central to Patrizi's new philosophy of the universe. Along with the Pythagorean-Platonic school, Patrizi regards the Aristotelian and the Stoic

45 For Patrizi's mathematical realism, see Henry 2001.

46 *NUP*4, II, 68^{r}.

47 Copenhaver and Schmitt 1992, 289.

mathematical schools as also important.[48] In addition, just like Ficino before him, he is convinced that authoritative views on the mathematical structure of the cosmos must be updated if reason or investigation or nature should prove that they are incorrect. To formulate his own mathematical philosophy of the universe, Patrizi first of all positions himself as a mathematical realist, holding, against the three ancient theories, that there are mathematical conceptions, such as the concept of space, which reflect the essential structure of reality:

> All [kinds of] mathematics, whether of higher or lower rank, are not abstracted from natural things [Aristotle], nor are they in the imagination [Stoics] or reason [Plato]; rather, their general subject is space.[49]

Ficino's *Compendium* based its interpretation of the Pythagorean doctrine of world harmony on Plato's mathematical view by arguing for the existence of an independent mathematical region lying between the intelligible and the sensible world.[50] Like the world of ideas, the world of 'things mathematical' existed independently of man. The mathematical world was perceived by the power of judgment or *dianoia*, that is, by mathematical reasoning. Hence, true knowledge of numbers and harmonic proportions could be reached only through mathematical reasoning. Patrizi argues against this Platonist view and the Stoic one as well and claims that mathematical objects cannot be defined in terms of human reason or imagination. They must be defined instead in terms of space. Furthermore, by means of an innate power, the

48 Dadić 2000, 157.

49 *Le matematiche tutte, e principali, e subalterne, ne si astraggono dalle cose naturali, ne sono nella fantasia, ne nella dianea, ma lo spazio è general lor subietto*. Patrizi, *Della nuova geometria*, 1587b, 2. Hereafter the *Della nuova geometria* will be abbreviated as DNG in the notes.

50 In contrast with Ficino, physics precedes mathematics in Patrizi's ontology and epistemology. This is reflected in the structure of the NUP, of which the first book of the "Pancosmia", "De spacio physico" ("On Physical Space"), is followed by "De spacio mathematico" and "De physici ac mathematici spacii, affectionibus" ("On the Affections of Physical and Mathematical Space") (NUP4, I–III). The central importance of these books for Patrizi's thought is proven by their separate publication four years before being incorporated into his great systematic treatise: the books on physical and mathematical space under the title *Philosophiae de Rerum Natura Libri II Priores*, the book on the affections of space under the title *Della Nuovo Geometria Libri XV*. The translations of passages of the "De Spacio Physico" and "De Spacio Mathematico" in this chapter are based on those by Benjamin Brickman, who translated large sections of these books. See Brickman 1943.

human mind is able to set apart from space those mathematical parts that serve its contemplation or functioning.[51]

In his discussion of the mathematical structure of the universe, Patrizi shifts the focus from an understanding of perfect and ideal numbers, ratios, and proportions—the main constituents of the numerology presented in Ficino's *Compendium*—and seeks instead a means of describing the physicality of objects in nature in geometrical terms. Still fully in line with Pythagoras, Plato, and Ficino, Patrizi argues that mathematics is essential for the study of nature:

> Rightly did this saying appear over the entrance of the divine Plato's school: "Let no one enter who is ignorant of geometry". And rightly was it said by the Pythagoreans that all things take their origin from the finite and the infinite, since they are found to have had primary space in mind. (This too is to be noted, that some parts of geometry and arithmetic are at the same time in common and others are proper to themselves such that they do not share at all with the others.) If there is in these sciences any utility for the life of man, it is due entirely to those first two sciences [geometry and arithmetic], as the sources; but the beginning of both must first be referred to space and its study, which I am the first to set forth in these books. Whence it appears that Aristotle was wrong in teaching that mathematics lacks purpose and utility.[52]

The last sentence of this quotation clearly suggests that Patrizi's study of some of the most important sources from the tradition of the harmony of the spheres must be seen as instrumental in his demolition of the Aristotelian philosophy of nature. Patrizi follows Plato and Ficino by arguing that mathematical entities are intermediaries bridging the divine and the natural world.[53] Hence, space as a mathematical construct is corporeal and incorporeal.[54] Given that space

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51 *NUP*4, II, 68^{r}.

52 *Rectaeque foribus scholae divini Platonis fuit praefixum. Geometria nescius, ingrediatur nemo. Rectaeque a Pythagoreis dictum est, ex finito, atque infinito omnia ortum habuisse, quando de spacio primum id intellexisse comperiantur. Illud quoque est animo advertendum, Geometriae atque Arithmeticae, quaedam esse simul communia quaedam vero propria cuiusque, ita ut alteri minime communicentur. Quarum scientiarum, si quae est in hominum vita utilitas, ea omnis in illas duas principes, ut ad fontes, harum autem duarum origo, ad spacium primum, eiusque scientiam hisce libris a nobis omnium primis exaratam est referenda. Unde falsam fuisse apparet Aristotelis assertionem, qui mathematicas fine, et utilitate carere docuit.* *NUP*4, II, 68^{r}–68^{v}. Translation modified from Brickman 1943, 244.

53 Patrizi follows here Ficino, *CiT* I, 59^{r}, quoted in II.3.3.

54 Brickman 1941, 44–53.

is its subject, mathematics is also corporeal and incorporeal. In its corporeal aspect, mathematics resembles things in nature, but in its incorporeal aspect, it partakes in that which is incorporeal.[55] Since it is incorporeal and corporeal at the same time, mathematics can be said to express the laws governing the empirical world. Whereas Ficino was above all interested in how mathematics refers with numbers to the divine, Patrizi's main focus is on how it refers through dimensions to things in nature. Since Patrizi claims to attach great importance to the empirical world in his new geometrical study of nature, he believes that traditional mathematical theories must be rejected, readjusted, or replaced if they do not match the reality of the natural world.

Given that Patrizi's natural world, like Ficino's, is still seen through the lens of metaphysics, his mathematical discussions are not always easy to follow. At first sight Patrizi's argument appears to imply that he considers space to be the subject of three of the mathematical disciplines: geometry, arithmetic, and astronomy. Consequently, in contrast to Ficino, music as the fourth mathematical discipline appears not to play a role of any importance in his cosmology. Nevertheless, music conceived as the science of acoustics remains an important discipline for studying sounds as part of nature. In the present discussion, I will first investigate how this major change in the underlying four mathematical disciplines influences the doctrine of the harmony of the spheres. With 'authority' and 'nature' as two contrasting aspects of his own philosophy, Patrizi sets himself the challenge of reconciling ancient with new beliefs on cosmic order and music theory.

In this section, I will defend the hypothesis that in his conception of world harmony Patrizi was a transitional figure, wavering between a traditional belief in the harmony of the spheres and a new view of the universe in which man and his music are conceived as separated from the universe. This new view manifests itself in Patrizi's philosophy in a split in the very nature of his concept of 'music'.[56] Whereas Ficino conceived of *musica humana* and *musica instrumentalis* as part of an all-embracing theory of *musica mundana*, in Patrizi's philosophy *musica mundana* is unrelated to *musica instrumentalis*, and *musica humana* has almost completely faded from view. The World-Soul, moreover, is exclusively associated with natural philosophical objects of knowledge and scientific truths, whereas the human soul is linked with the subject of knowledge and ethical and aesthetic values. Ultimately, then, the nature of music in Patrizi's philosophy is split between a realm of acoustical facts, which will be

55 *NUP*4, II, 68r.

56 Here I build on an argument formulated in Chua 2001, 19.

dealt with in this chapter, and a realm of subjective experience of music, which is the topic of the next chapter.[57]

4.3.1 *Questioning the Primacy of Number*

The "De spacio mathematico" (On Mathematical Space)—the second book of the "Pancosmia" (the fourth part of the *Nova philosophia*)—is dedicated to Patrizi's views about two of the four mathematical disciplines which traditionally were part of the foundation of the doctrine of world harmony: arithmetic and geometry.[58] First of all, the book is written to prove that Aristotle was wrong in teaching that mathematics had no utility, while Plato and Pythagoras were right in arguing that true knowledge of the universe can be reached only through mathematical reasoning.[59]

Patrizi discusses in detail the traditional Pythagorean theory that the world is organized by the numerical laws of the *tetractys*. Though it is not entirely clear whether he discusses Pythagorean theory as part of history or whether he believes that it can still be used in his time, it is evident that the mathematical beliefs of the ancients are important for his theory of space:

> And the Pythagoreans, the wisest of the ancient thinkers, were correct in saying that the number 2, that is, the first number, corresponds to a line. The number 3, that is, the second number, corresponds to a surface. The number 4, that is, the third number, corresponds to a solid, for the nature of things recommends or urges this, albeit tacitly. They do not accept that continuous quantity progresses beyond the number 4 (from which four numbers [i.e., 1, 2, 3, 4] the number 10, the ultimate number, is formed), or beyond the solid. This [number] itself is contained within the number 4. For just as the part of space which is held between two points is a line, and that between three points is the first surface, a triangle, so the part of space which is contained within four points forms the first body, a pyramid. Subsequently, if a space be contained within five points, or six, or

57 For the Renaissance history of the relationship between object and subject in music theory, see the first part of Moreno 2004.

58 In sharp contrast with the modern character of "De Spacio Mathematico", Patrizi deals in his treatise *De numerorum mysteriis* (*On the Mystery of Numbers*; 1594) (Biblioteca Ambrosiana, Milan, cod. H180 inf., 142–172) with the subject of mathematics in a traditional numerological way. As this treatise on arithmetic and numerology seems to be an occasional text—it was commissioned by Cardinal Federico Borromeo, who was mainly interested in traditional cosmology and the accompanying science of the four mathematical disciplines—it is not included in my analysis.

59 *NUP*4, II, 68^{v}.

> any larger number, it will not form anything other than a solid, that is, an object with a threefold dimension: length, breadth, and depth, by which we measure the parts of infinite space (for the whole, being infinite, we do not measure).[60]

Like Plato at *Tim.* 35b–c and Ficino's commentary on the same passage, Patrizi describes cosmic order in terms of numbers. In line with the tradition, in the passage just cited, he explains that Unity is not a number, but that it is followed by numbers, the lowest number being 2. The first number, 2, corresponds to two points in space that represent a line. If one adds a third point, one arrives at the surface of a triangle, and subsequently, if one adds a fourth point, one arrives at the three-dimensional body of a pyramid. In this way, three-dimensional space can be expressed in terms of numbers represented by dots in a diagram (fig. 4.1).[61]

Subsequently, Patrizi notes how the whole world was explained by the Pythagoreans in mathematical terms:

> And no less deserving of our admiration is the fact that the number 10 is produced in yet another way: from the continuous quantities constituting the first body—namely, six lines and four surfaces, the three sides and base of a pyramid. Yet between such points and lines and surfaces, even if many more be taken for forming figures of bodies, there can be enclosed only three spaces—length, breadth, and depth—which make one and every body. And so it was rightly said by the Pythagoreans that the three embrace all, and so are perfect. And so as nature leads us through the degrees of things in order, we have been led to points, to lines, to surfaces,

60 *Ac veterum scientissimi Pythagorei recte dixere, binarium qui primus numerus esset, lineae respondere. Ternarium qui secundus, respondere superficiei. Quaternarium qui tertius, respondere corpori: suadente, cogenteque quamvis tacite, rerum natura. Quae nec ultra quatuor numerum,* (*ex quo denarius, numerorum ultimus conficitur*) *nec ultra corpus passa est, continuum progredi. Idque ipsum intra quatuor. Etenim sicuti, quae inter duo puncta spacii pars intercipitur, linea est, et quae inter tria, prima est superficies triangulus, sic quae inter puncta quatuor spacii pars continetur,* (*uno in eodem posito*) *primum corpus efficitur Pyramis. Post quod si quinque punctis spacium comprendatur, si sex, si aliis pluribus, non aliud quam corpus absolvent. Hoc est trinam dimensionem, longum, latum, et profundum. Quibus partes spacii infiniti* (*nam totum ut infinitum non metimur*) *dimetimur.* *NUP*4, II, 66ᵛ.

61 *NUP*4, II, 66ᵛ.

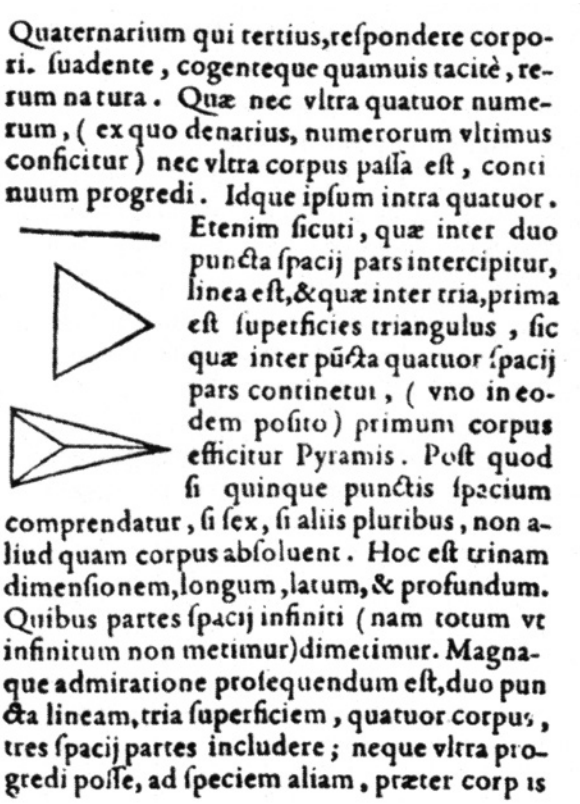
Quaternarium qui tertius, reſpondere corpo-
ri. ſuadente, cogenteque quamuis tacitè, re-
rum natura. Quæ nec vltra quatuor nume-
rum, (ex quo denarius, numerorum vltimus
conficitur) nec vltra corpus paſſa eſt, conti
nuum progredi. Idque ipſum intra quatuor.
Etenim ſicuti, quæ inter duo
puncta ſpacij pars intercipitur,
linea eſt, & quæ inter tria, prima
eſt ſuperficies triangulus, ſic
quæ inter pũcta quatuor ſpacij
pars continetur, (vno in eo-
dem poſito) primum corpus
efficitur Pyramis. Poſt quod
ſi quinque punctis ſpacium
comprendatur, ſi ſex, ſi aliis pluribus, non a-
liud quam corpus abſoluent. Hoc eſt trinam
dimenſionem, longum, latum, & profundum.
Quibus partes ſpacij infiniti (nam totum vt
infinitum non metimur) dimetimur. Magna-
que admiratione proſequendum eſt, duo pun
cta lineam, tria ſuperficiem, quatuor corpus,
tres ſpacij partes includere; neque vltra pro-
gredi poſſe, ad ſpeciem aliam, præter corp is

FIGURE 4.1 *A diagram representing the relationship between the point, line, surface, and solid. From Francesco Patrizi*, Nova philosophia *4, II, 66v.*

to solids, to Unity, to numbers. But among the sciences these things constitute the whole of that which the ancients called mathematics.[62]

62 *Nec minore admiratione dignum, alio etiam modo, ex continuis primum illud corpus constituentibus, denarium gigni: lineas nempe sex, superficies quatuor, tria scilicet Pyramidis latera et basin. Inter quae tamen puncta et lineas, et superficies, etiam si longe plures in formandis corporum figuris constituantur, non nisi tria spacia, longum, latum, ac profundum, corpus unum, atque omne conficientia, concludi posse. Itaque recte a veteribus. Pythagoreis dictum est; tria includere omnia, atque ideo esse perfecta. Igitur, natura nos per rerum gradus, ordine ducente, in puncta, in lineas, in superficies, in corpora, in unitatem, in numeros deducti sumus. Haec autem scientiarum, eam, quae mathematica a veteribus est nuncupata, universam constituunt.* NUP4, II, 66v.

In these two passages Patrizi re-establishes the Pythagorean-Platonic correspondence between numbers and Unity. In line with the Pythagoreans, he claims that a point and Unity are one and the same thing. But whereas the term 'point' is used in relation to a line, the term 'Unity' is used in relation to number. Furthermore, he argues that a point is not itself space but only exists in space. However, it is difficult to determine whether Patrizi subscribes to this mathematical realist view himself, because he concludes his discussion with the remark that this is that "which the ancients called mathematics". Thus, it remains unclear whether Patrizi endorses the opinion that numbers are the elements or principles of things.

As for Patrizi's exposition of the discipline of arithmetic, we are now able to address a problem formulated by Henry (2001, 145)—"it is difficult to understand what Patrizi is trying to do in 'De spacio mathematico' "—and answer the question "why he considers it important". In line with theories of world harmony, Patrizi tries to construct an all-embracing mathematical system of the universe on the premise that if there is a "maximum in things" (i.e., space), there must be also a minimum (i.e., an infinitesimally small part of space).[63] Though this looks like a modern scientific ambition, his ideas on the mathematization of space are still coloured by Pythagorean and Platonic numerology, in which the concepts of Unity and Indivisibility have a metaphysical connotation.

Like Ficino before him, Patrizi imagines the universe as a golden chain of being in which the whole and the smallest part are connected.[64] His description of the gradations of reality in terms of the biblical metaphor of Jacob's ladder brings the number of hypostases—a complex system of the fundamental causes of the universe borrowed from Proclus—to ten, that is, the number of the Pythagorean *tetractys*, to which Patrizi explicitly refers:[65]

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63 *NUP*4, II, 66r.

64 For a comparison between Ficino's and Patrizi's theories of the chain of being—linking the First Cause, the absolute One, to its ultimate effect in the material world through a number of intermediary hypostases—and their sources, see Brickman 1941, 30–39, esp. 35; and below at 4.4.1. For the history of the theme of the golden chain of being, see Lovejoy 1961.

65 Patrizi's chain of being consists of the following hypostases: (1) *Un'Omnia* (*Paternum Profundum*, God), (2) *Unitas*, (3) *Essentia*, (4) *Vita*, (5) *Intellectus* (2–5: indestructible, incorporeal, and invisible), (6) *Anima* (intermediate position and character; alternatives are Space and Light), (7) *Natura*, (8) *Qualitas*, (9) *Forma*, (10) *Corpus* (7–10: destructible, corporeal, and perceptible). Brickman 1941, 35.

> Among these things is, first, the Father of the whole universe, the One. And next to Him, coming from Him, is duality representing the second person of the Divinity, which, having turned towards the Father, produces the third person through the breath breathed into him by the Father and breathed back into the Father from himself; this third person is represented in the threesome which simultaneously proceeds from the one and the duality together. And since these three are one in their union and in their depth, they contain a quaternary: One, Essence, Life, and Intellect. And, perhaps, Pythagoras meant this quaternary when he called it the *tetractys* and swore by it as the sacrosanct and greatest oath of all.[66]

This interpretation of Pythagorean and Platonic numerology is clearly inspired by Ficino's attempt to Christianize Plato in his *Compendium*. Against the backdrop of the Counter-Reformation, however, Patrizi's attempt is much more outspoken than Ficino's. Even though this kind of numerology is still found in Patrizi's philosophy of nature, he evidently is equally interested in the purely quantitative aspects of arithmetic and geometry.

Hereafter in 'De spacio mathematico', Patrizi raises the question of whether continuous or discrete quantities come first in the mathematical order of ultimate reality. As Brickman (1941, 69) observes, Patrizi answers this question in an ambiguous way, wavering between mathematical realism and instrumentalism. Initially, his discussion equates continuous with discrete quantities in his definition of a number and a line:

> Number is not before line, and line is not before number. Nor does the [following] question, which tormented the ancients, still occupy their successors: namely, which, between continuous and discrete quantity in nature, is the older and the prior? For they are similar. Neither of the two is earlier than the other, nor does one exist without the other, nor can it.[67]

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66 *Inter quas primo est totius universitatis pater, Unum. Cui proxima ab eo veniens, est dualitas, secundam divinitatis personam representans, quae in patrem versa, tertiam personam per spiritum sibi a patre spiratum, et a se in patrem respiratum producit, ternario representatam, quae ex uno et duitate simul iunctis procedit. Et quoniam hi tres unum sunt in sua unione, et suo profundo, quaternarium comprehendunt, unum, essentiam, vitam, intellectum. Atque hoc forte voluit Pythagoras, quando tetractym nominabat, et per eam, sacrosancto ac summo omnium iurabat iuramento.* NUP2, XI, 24[r].

67 *Neque numerus ante lineam est, nec linea ante numerum. Nec iam posteros quaestio illa vexet, quae veteres male torsit: utra nam, vel continua, vel discreta quantitas, natura*

Patrizi is right that there are indeed ancient sources dedicated to the question of the primacy of continuous or discrete quantity, but within the Pythagorean-Platonic tradition, the primacy of the discrete quantity of number was never questioned.[68] After he explains this traditional view, Patrizi formulates his own solution to the many problems caused by what, in his view, is the false mathematical belief that number, rather than line, is the primary constituent of the universe. Instead of defending the equality of number and line, he changes position and now emphasizes the priority of the continuous quantity of the line:

> It has become clear that the continuum is in its own nature older and prior to all division; that its division and cutting, made by the power of human thought, created number. And hence it becomes clear too why the ancients called number a discrete quantity, basing themselves on divination rather than knowing the cause.[69] It is also clear that continuous quantity exists by nature, while number is the work of the human mind. (But in the bodies of the world, which are divided from each other, it also exists by nature.) It likewise becomes clear that the continuous is older than the discrete, since no division can by made by any power without an antecedent continuum.[70]

At first, Patrizi seems to defend in this passage a Stoic view of number as a purely conventional mental construct without a real existence in the world.[71]

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antiquior esset, ac prior. Simul enim sunt. Neque est altera ante alteram, nec altera sine altera est, nec esse potest. NUP4, II, 66^{v}. Translation Brickman (1941).

68 Ancient scholars who questioned the primacy of number included Euclid and Aristoxenus. See Deitz 1999, 150–151, esp. n. 60.

69 Whereas illumination, divination, and revelation were valuable ways of obtaining knowledge for Ficino, Patrizi is ambiguous about their epistemological value. Here he dismisses them as unreliable for obtaining knowledge, but in other places he still makes use of them.

70 *Patuit quoque, continuum sui natura, omni divisione antiquius ac prius esse: cuius divisio, ac defectio, humanae cogitationis vi facta, numerum procreasse. Atque hinc etiam sit manifestum; cur numerus discreta quantitas a veteribus divinantibus potius quam causam scientibus sit appellatus. Patet quoque continuam quantitatem a natura esse, numerum vero humanae mentis esse opus.* (*In mundanis autem corporibus inter se divisis, esse etiam a natura.*) *Clarum quoque evasit, continuum antiquius esse discreto. Quoniam discretio nulla fieri posset a vi ulla, nisi continuum antecederet.* NUP4, II, 68^{r}; translation modified from Brickman 1943, 244.

71 Dadić 2000, 159.

But against the background of his rejection of the Stoic mathematical view discussed above, it seems more plausible to assume that Patrizi was a mathematical realist, believing that numbers exist in the world independently of the human mind. Patrizi's new ideas about arithmetic are problematic in this respect: the traditional notion of the primacy of number, as used by Ficino, has a metaphysical foundation which justifies its primacy over the line. Hence, for the coherence of his philosophy Patrizi must support the Pythagorean-Platonic view that number exists in nature rather than being a concept invented by the human mind. Furthermore, the causal explanation for all things and processes in the world that is provided by the Neoplatonist interpretation of the Creation story can remain fully intact only if numbers somehow exist in reality.

Here Patrizi is confronted with a dilemma: the uniform mathematical theory in which all different spheres and elements of physical nature ultimately reduce to space as their first principle can be built better on a foundation of continuous quantity, since line, surface, and body adequately fit the description of things in physical nature. Given that only a theory that describes nature in terms of continuous quantity will enable a fully quantitative study of the subject, Patrizi is compelled to sacrifice the Pythagorean doctrine of number as the ultimate constituent in his account of the universe. This has the positive side effect of expelling numerology, which had crept into the tradition of the harmony of the spheres, from Patrizi's philosophy of nature.[72] Whereas for Ficino things in nature could still be explained in terms of the qualitative and symbolic aspects of numbers, the natural philosophy of the "Pancosmia" no longer admits this kind of reasoning by numerical similitude. The metaphysics of the "Panaugia" and "Panarchia", however, are still indebted to Neoplatonic number symbolism.

To escape a radical choice between number as first constituent of the cosmos or number as conventional construct of the human mind, Patrizi formulates the following compromise:

> primary space is divided by no power of nature or of the human mind. Nevertheless, nature did place discrete bodies in its continuous parts. But the mind conceives it as divided [i.e., discrete] whenever it so desires. And throughout primary space, lines, surfaces, bodies, and incor-

72 For a discussion about the relationship between numerology and science in the early modern reception of the tradition of the harmony of the spheres, see Westman 1984, 177–229. The relationship between nature, art, and psyche becomes subject to vehement debate in the seventeenth-century tradition of the harmony of the spheres.

> poreal qualities, it seems, are infinite in number, in magnitude, and in act; that is, in reality itself there are lengths, breadths, and depths, without number and without end. All these things, however, are imagined by us as finite.[73]

Patrizi's solution allows him to avoid the choice between a realist and an instrumentalist viewpoint. By stating that, on the one hand, "nature did place discrete bodies in its continuous parts", he admits that number exists in objects in the physical world.[74] On the other hand, because space is infinite, "without number and without end", he postulates that insofar as space is concerned, the mind must conceive of discrete finite units and thus create number to apply these units to things in nature. Consequently, Patrizi's mathematical theory is supported by two entirely different views of the world, but somehow he seems to fail to understand their incompatibility. In his treatment of the mathematical discipline of music, however, Patrizi clearly chooses an instrumentalist position, as we shall see now.

4.3.2 *The Universe is not Ordered by Numerical Ratios that Produce Musical Consonances*

Whereas music, the second mathematical discipline of the quadrivium, was promoted to the most important mathematical discipline in Ficino's *Compendium*, it is disregarded almost completely in Patrizi's *Nova philosophia*. In this section I will investigate Patrizi's motivation for this elimination and the consequences of this drastic intervention for the doctrine of the harmony of the spheres.

Patrizi's "De spacio mathematico" provides an impressive list of all the applied sciences that trace their logical origin to mathematics, including the science of music. Music is described as a science that originates in the sciences of arithmetic and geometry. Patrizi also associates sciences with each one of the four elements; in this scheme, music is ordered in the group of sciences belonging to the element air:

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73 *. . . spacium illud primum a nulla naturae, a nulla humanae mentis vi divisum esse. Fuisse tamen a natura, in eius partibus continuis, divisa corpora collocata. A mente vero, quandocumque libet, divisum cogitari. In eoque omni, lineas, superficies, corpora, incorporea illa scilicet, et numero, et magnitudine actu infinita esse, hoc est longitudines, latitudines, profunditatesque, sine ullo numero, sine ullo fine, re ipsa esse. Haec tamen cuncta, a nobis finita imaginari.* NUP4, II, 68r; translation from Brickman 1943, 243.

74 Brickman 1941, 69.

> Furthermore, from these two sciences [i.e., geometry and arithmetic] others arise, and these are neither few nor obscure and are linked with other natural things. . . . [The science of] astrology and its branches, which studies the bodies that are the sources of light and the changes it sustains from their motions, is followed by pneumatics, which studies and treats of the air, the body next to Heaven, and by music and the whole of hydraulics, which puts water into operation, and whatever other science is connected with it.[75]

Fully in line with Ficino's definition of music, Patrizi classifies the science of music as a science that can be described in terms of its basic substance: air.[76] Yet whereas Ficino conceived of music in terms of 'ideal number', Patrizi conceives of it in terms of 'real sound', that is, in terms of sound waves travelling through the air. And while Ficino thought of air as a supernatural animated substance, Patrizi understands it in natural terms and hence defines 'sound' as a natural phenomenon which manifests itself in the sense of hearing. His focus on sound waves (i.e., vibrations of air) as a purely natural substance is far away from the metaphysical theory of cosmic sympathetic vibration that became the centre of Ficino's view of world harmony.

In Patrizi's philosophy the nature of music is split. Yet because of the transitional character of his philosophy, this split is not directly reflected in his treatment of the discipline of music. As Chua (2001, 19) notes, in this period one would have expected that sound, as the object of the science of acoustics, would have been dealt with in the context of the natural philosophy and that music, as the object of aesthetics, would have been addressed in treatises on aesthetics. Apart from the brief reference to music quoted above, however, music and acoustics are nowhere dealt with in the *Nova philosophia*. Rather, Patrizi discusses all musical phenomena in the music-theoretical treatise included in the first part of *Della poetica* (*On Poetics*; 1586).[77]

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75 *Oriuntur autem ab his duabus, scientiae aliae, et illae quidem, nec paucae, nec ignobiles, cum rebus aliis naturae iam coniunctae. . . . Et post has corpora iam contemplans unde lumen provenit, et mutationes ex eorum motibus patitur, astrologia universa, eiusque partes. Hanc sequitur, quae circa aerem proximum coelo corpus, et contemplatur, et operatur, Pneumatice et Musica, et quae aquam in opus profert Hydraulice omnis, eique si qua est coniuncta*. NUP4, II, 68^{v}; translation from Brickman 1943, 245.

76 Unlike some of his contemporaries, Patrizi assigns music no role whatsoever in his natural science. For music as a model in early science, see Kassler 1982, 103–139.

77 The first three parts of Patrizi's *Della Poetica* (hereafter abbreviated as DP in the notes), that is, the "Deca Istoriale", "Deca Disputata", and "Deca Ammirabile" (hereafter abbreviated, respectively, as DI, DD, and DA), have been published in a modern edition by

In his ideas about the relationship between nature and music theory, Patrizi is heavily indebted to Vincenzo Galilei's *Dialogo della musica antica et della moderna* (*Dialogue on Ancient and Modern Music*; 1581).[78] Patrizi's choice to borrow Galilei's music theory in his *Della poetica* seems to follow upon some of the philosophical assumptions of the *Nova philosophia*.[79] Just like Galilei, he is sceptical of the authority of Pythagoras, but he also fills many pages of his *Della poetica* with appeals to Greek philosophers and music theorists. Most important in the context of Patrizi's music theory, however, is his scepticism about all things undemonstrable, pseudo-arithmetical, and numerological. In the field of music theory Patrizi seems to be mainly interested in a strictly secular enquiry into what can be proven through the sense of hearing. Patrizi follows Galilei in classifying the traditional Pythagorean science of harmonics in the category of knowledge that depends on authority, whereas the study of real sound as part of nature ought in principle to be as independent as possible of that authority. Here, as ever, Patrizi's position is ambiguous, because in his account of the *prisca theologia*, discussed at 4.2.1, Orpheus, Pythagoras, and Plato continue to play an important role.

Galilei and Patrizi wrote about tuning and temperament in a period when the contemporary secularization of music made the purpose of composition more and more explicit, at least in its social context.[80] Music was supposed to afford pleasure and 'move the affections'. Composers realized that if they desired to please their listeners, they would need to follow a carefully articulated plan. Changes in the Pythagorean tuning seemed to be a basic precondition to establish a logical and linear structure within which they could construct a musical argument able to move, and at the same time to entertain, a listening audience. Weber (1958, 89ff.) describes the development of the diatonic tonal system in this period as a historical process of increasing rationalization. During this process, subtle changes are made in the definition of the intervals in the Pythagorean tuning and in just intonation for the sake of diatonic principles. In the course of the history of music, later on these in

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Aguzzi-Barbagli (1961–1971). This author also wrote one of the very few articles on Patrizi's philosophy of music (1983).

78 For the relationship between Vincenzo Galilei and Patrizi, see Galilei 2003, lxi. For Galilei's music theory, see, e.g., Chua 2001.

79 Patrizi's ambition—stated at *NUP*1, [Title page], 1r—to base his philosophy on reason and conclusive experiments is very similar in its scientific bent to Vincenzo Galilei's basic assumptions. See Galilei 2003, xxvii–xxviii. For an introduction to the changing functions of sense and reason in Italian music theory, see Fend 1991, esp. 199–202.

80 Fubini 1990, 117.

turn become the basis of a functional harmony and the accompanying equal temperament.[81] Yet given that tuning and temperament are associated with the very tuning of the universe itself, updating and changing them requires thorough justification.

In order to provide such a theoretical justification, like Galilei, Patrizi maintains that a theory of music must formulate a system of related sounds instead of numbers.[82] The establishment of such a tuning system for musical sounds is an essential precondition for the creation of musical compositions, their notation, and their performance. A thorough investigation of the very foundations of music is also important for rediscovering the practice of ancient Greek vocal music, one of the chief aims shared by Patrizi and Galilei.

Because Patrizi adopts the contemporary popular belief that the marvellous effects of ancient Greek music and sung poetry depended greatly on a lost kind of music-theoretical knowledge, he is compelled to take a firm position in the debate on tuning and temperament.[83] In response to the question of whether singers should base themselves on Pythagorean, just, or equal temperament, he argues, with Galilei, that the singing of the sixteenth century is, and should be, not far from the tuning of Aristoxenus.[84]

Galilei's *Dialogo* sets out to prove that the tuning then used in vocal music could not be the syntonic diatonic of Ptolemy, as his former teacher Gioseffo Zarlino had maintained.[85] This temperament corresponds roughly with the just intonation advocated by Ficino (see 2.4.2). Galilei, however, argues that the tuning used in the vocal music of his own time strikes a compromise between two Pythagorean temperaments: one with pure fifths and another with consonant thirds. He also shows that, contrary to what scholars like Ficino believed,

81 For a definition of equal temperament in mathematical terms, see Lindley and Turner-Smith 1993, 44–46.

82 In his preference for knowledge based on sense experience and nature rather than reason and authority, Patrizi mentions Vincenzo Galilei as his source in only one passage; here he accuses Galilei of splitting hairs on unimportant music-theoretical matters; see *DP*, D17, 354. In addition, Patrizi refers to Galilei when Patrizi argues that poems were sung in antiquity; see *DP*, D15, 286; and Galilei 2003, 131–134. In contrast to Galilei and Giovanni Bardi, however, Patrizi presents himself as interested mostly in philosophical, rather than practical, matters concerning the relationship between cosmic order and music theory. This might help to explain why Patrizi borrowed ideas about tuning and temperament from Galilei's more practical and empirically oriented *Dialogo della musica antica et della moderna*.

83 For a discussion of this subject in *DP*, see also Palisca 1985, 425–426.

84 For the rediscovery of Aristoxenus in the Renaissance, see Palisca 1994, 189–199.

85 For the Zarlino-Galilei dispute, see, e.g., Goldberg 2011.

the Greek 'modes' are entirely different from the church modes used in medieval and Renaissance music.

In his description of the establishment of a tuning system, Patrizi follows Galilei, who believes that hearing musical sound, rather than thinking of sound in terms of numbers, ratios, and proportions, is essential to musical judgement. The question of whether the ancient Greeks accompanied their songs with instruments is of fundamental importance for Patrizi, because had they done so, it would have influenced their tuning system. He argues that, given the marvellous effects of ancient Greek music, as attested in many sources, and given the evidence of their mixed vocal and instrumental performance practice, they must have had a tuning system in which they could modulate easily from one 'affective' musical mode to another, a system in fact that suited singers as well as instrumentalists. In order to rediscover the fundamentals of their tuning system, which by extension should also serve as a base for a modern tuning system, Patrizi first investigates the general characteristics of the Greek science of music.[86] The discipline of music can be subdivided into four parts, of which the second deals with aspects of sound:

> The second "apergastical" [category of music theory] was subordinated to [the science of] harmony and discussed high and low sounds, the intervals and their numbers, and the consonances and the dissonances that were generated as a consequence.[87]

But rather than following Ficino and the Pythagorean tradition of the harmony of the spheres and defining consonant sounds in terms of numbers and their proportional relationships, Patrizi follows Galilei's discussion of Aristoxenus's tuning system, arguing that the constituents of a tuning system are sounds.[88]

Ficino had already extended the numbers of the sacred *tetractys* to the numbers 5 and 6, in the belief that he could reconcile the just intonation of the fifteenth century—which provided consonant thirds and sixths alongside pure fourths and fifths—with Pythagorean harmonics.[89] But when a diatonic

86 Patrizi derived his ideas about the essence of rhythm from Aristides Quintilianus's *De musica* (this passage is published in Quintilianus 1785, 266–305) and Michael Psellus's music theory in Codex Marcianus DXXIV in the Biblioteca Marciana, Venice. See Patrizi 1969–1971, 1 (1969): 311, nt. 1 and 2.

87 *La secondo apergastica era sottordinata all'armonia e contemplò i suoni acuti e gravi, e gli intervalli loro numerali, e le consonanze e dissonanze quindi nascenti.* DP, D16, 311.

88 Fend 1991, 199.

89 For the principles of just intonation, see 2.4.2.

or a chromatic scale was established using the proportions of the intervals of a scale in just intonation, it was revealed by calculation and by practical experience that some proportions contained comparatively large numbers, and some intervals sounded harsh. Because of these shortcomings for musical practice, just intonation was attacked by some of the music theorists of the late sixteenth century. As Fubini (1990, 120) explains, there had always been shortcomings in tuning systems and temperaments. The novelty in sixteenth-century music theory, however, is that theorists try to solve these shortcomings by describing the sounds used in the musical practice as accurately as possible rather than reverting to an ideal music theory.

In order to obtain as many consonant thirds and fifths as possible without increasing the number of steps within an octave, Galilei realizes that tempering the intervals is inevitable.[90] But this slight enlarging or diminishing of the distances between pitches leads, in mathematical terms, to irrational ratios. The existence of irrational ratios, moreover, is a gross violation of the Pythagorean theory that the universe is ordered by the same numerical proportions that produce harmonies in earthly music. Indeed, if certain calculations had been employed in music theory not because they were mathematically correct but only because they had been transmitted as authoritative, then the very idea of a music of the spheres would have been nothing more than a historical fable. This in turn would imply that philosophers like Ficino, who had believed that a tuning system could be based on the very numbers of the World-Soul itself, ultimately were misled. In these matters Patrizi's intention to establish scientific truths with regard to nature must have taken precedence over his deference for the eternal truth of a musical world harmony established by the *prisci theologi*. This can be demonstrated in further detail on the basis of his discussion of Aristoxenus's tuning system.

As Weber (1958, 98) and Palisca (1994, 189) have shown, already in the fourth century Aristoxenus rejected mathematical reasoning as a way of measuring the size of musical intervals, preferring to do so by ear. He determined the size of a diatessaron—the interval of the fourth on which the four-note tetrachord was built—not on the ratio 4:3, as was the custom in Pythagorean music theory, but on a certain number of parts, or units of pitch distance as experienced by the ear, each semitone containing six of these and the musical interval of a fourth, therefore thirty. Galilei was the first modern music theorist to adopt such an approach to the construction of a musical scale, one that made the equal temperament of the diatonic octave possible.

90 Galilei 2003, 105–114.

Galilei starts his discussion of tuning and temperament with a defence of Aristoxenus against Ptolemy. Ptolemy had accused Aristoxenus of alleging that a string could be divided into twelve equal parts to obtain the twelve tempered equal intervals that constitute the twelve chromatic steps of a diatonic octave.[91] Yet, according to Galilei, Ptolemy had explained correctly that Aristoxenus conceived of any given musical interval as one and the same fraction on any part of the string. Aristoxenus determined the sizes of the intervals simply by counting the number of fractions. Ptolemy could not agree with the Aristoxenian method of determining the constituents of a tuning system, because in fact it did not unambiguously define the precise size of intervals. Instead, as Fend (1991, 201) explains, it introduced infinitely many possibilities for each interval with a certain ratio, since Aristoxenus neglected to determine beforehand the factors that form such a ratio. Aristoxenus, indeed, was a mathematical instrumentalist, who held that mathematical conceptions are obtained through abstraction and idealization of observational sounds, which are not themselves structured according to mathematical law.

Galilei's defence of Aristoxenus, with which Patrizi must have been acquainted, proceeds as follows:

> Aristoxenus knew very well that the quality of sound was what had to be distributed in equal parts, and not the quantity of the line, string, or space. He was operating as a musician on a sonorous body, not as a pure mathematician on a continuous quantity.[92]

In his explanation of how the ancient Greeks tempered the string of a monochord in three ways to obtain a diatonic, chromatic, or enharmonic tetrachord-species (i.e., subdivision of the interval of a fourth), Patrizi implicitly borrows Galilei's assertion that equal temperament—which in some early form was used in the late sixteenth century—is not far from the tuning system of Aristoxenus.[93] In equal temperament all 'natural' Pythagorean intervals are tempered: the semitone is slightly smaller than half a Pythagorean tone

91 See Galilei 2003, 127.

92 *. . . sapeva Aristosseno, d'havere a distribuire in parti uguali la qualita del suono, & non la quantita della linea, corda, & spatio: operando alhora come Musico intorno al corpo sonoro, & non come semplice Matematico intorno la continua quantita*. Galilei 1967, 53; translation from Galilei 2003, 127.

93 For a discussion of the passage on tuning systems in *DP* ("Generi", *DP*, DI7, 344–348), see Palisca 1994, 195; and Tuksar 1980, 79–104.

with the ratio (9:8).[94] Furthermore, the fifth is a little smaller than the pure Pythagorean fifths, with the ratio (3:2), and the fourth is a little bigger that the pure Pythagorean fourth, with the ratio (4:3). The simplest way to construct a monochord in equal temperament is to choose a correct ratio for the semitone and then apply it twelve times, a construction that can be performed very easily by similar proportion. As Barbour (1951, 57) shows, Galilei must be given the credit for explaining a practical, but highly effective, method of this type. For placing the frets on the lute he used the ratio 18:17 for the semitone, saying that the twelfth fret would be at the midpoint of the string.[95]

Patrizi's discussion of the tuning system of Aristoxenus roughly follows Galilei's defence of Aristoxenus, but it draws as well from other music-theoretical treatises.[96] He begins with a paraphrase of a passage from the Plutarchan treatise *De musica* (*On Music*) about the very origin of the diatonic, chromatic, and enharmonic tetrachords:[97]

> In the first age [i.e., antiquity] all these five modes—or tonalities [*tonoi*] or harmonies [*harmoniai*]—were comprehended in two (so-called) species of music [i.e., kinds of tetrachords]: 'diatonic' and 'chromatic', which were in use until the Elder Olympus.[98] He was the first musician,

94 According to Vincenzo Galilei, Aristoxenus divided the tone "in such a way that the semitone did not occupy the entire half of the 9:8 tone but something less" (Galilei 2003, 130).

95 Since 18:17 represents 99 cents (frequency of vibration) in terms of modern acoustics, Galilei was correct in contending that equal temperament is not far from the tuning proposed by Aristoxenus. Barbour 1951, 57.

96 A list of Greek manuscripts in the possession of Patrizi, rediscovered at the beginning of the twentieth century by Emil Jacobs, includes a number of ancient music-theoretical treatises. This list includes Aristoxenus's "Musica" (perhaps a copy of *The Harmonics of Aristoxenus*), Theon of Smyrna's commentary on Plato's "De Musica" (which presumably refers to the explanation of the discipline of music in Theon's *On Mathematics Useful for the Understanding of Plato*), and Porphyry's commentary on Ptolemy's *Harmonics*, including the Alypius tables. This list, however, does not include Patrizi's copy of Gaffurius's *Theorica musicae* (*Music Theory*) now in the J.R. Ritman Library, Bibliotheca Philosophica Hermetica, Amsterdam. For Patrizi's collection of Greek manuscripts, see Jacobs 1908; and Muccillo 1993, 73–118, esp. 85.

97 Patrizi deals with the three divisions of the interval of a fourth in *DP*, D17, 344–348. The passage about the diatonic, chromatic, and enharmonic species (*DP*, D17, 346–347) corresponds to Galilei 2003, 105–106.

98 For the account of Olympus the Elder, see (Pseudo-)Plutarch's *De musica* 1132f–1133e, discussed in Barker 1984–1989, vol. 1 (1984) 223.

> [Pseudo-]Plutarch[99] says, following Aristoxenus's testimony, to discover the third kind [of tetrachord], the 'enharmonic' one.[100]

Patrizi subsequently explains that all modes—the five ancient Greek modes: Ionian (c),[101] Dorian (d), Phrygian (e), Lydian (f), and Aeolian (a);[102] as well as the six modern church modes: Mixolydian, (g) Hypermixolydian, Hypolydian (c), Hyperphrygian, Locrian [i.e., Hypodorian (a)],[103] and Hypomixolydian (d),—which Patrizi omits—are based on the diatonic, chromatic, and enharmonic subdivisions of the tetrachord.[104]

Subsequently, Patrizi defined the diatonic tetrachord-species, the most important for late sixteenth-century Italian music:

> The condition of these [i.e., diatonic tetrachords], as described by Euclid [i.e., Cleonides][105] and Nicomachus,[106] was that each tetrachord, where the first string resonates with the fourth in a diatessaron consonance (or fourth as we call it), was subdivided in thirty equal parts all of equal measure. Of these thirty parts, six were attributed to the interval of length from the first to the second [string], so that between them the interval of a semitone could be recognized, and from the second [string] the length of the part of the string was doubled, that is, twelve of the aforementioned parts, which resounded in the interval of a whole tone; and finally,

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99 For Pseudo-Plutarch's passage on the three tetrachord species, see Plutarchus, *De musica* 1134f and 1142d, discussed in Barker 1984–1989, vol. I (1984), 215–216 and 239. For Pseudo-Plutarch's *De musica*, see also Mathiesen 1999, 747–748.

100 *Ora tutti questi cinque modi, o tuoni, o armonie, furono compresi nell'età prima da due generi* (*così chiamati*) *della musica: diatonico, e chromatico, fino ad Olimpo il primo. Il quale Plutarco, di testimonio di Aristosseno, dice haver trovato il terzo genere enermonico.* DP, D17, 344–345.

101 The Ionian mode lies at the root of the modern diatonic major tonality in equal temperament.

102 The Aeolian mode lies at the root of the modern diatonic minor tonality in equal temperament.

103 The use of the term 'Locrian' for the Hypodorian mode is a strong indication that Galilei's *Dialogo* is Patrizi's source for this discussion of the modes. See Galilei 2003, 195.

104 Such omissions and little mistakes in Patrizi's account of tuning and temperament have occasioned Bottrigari (1985) to question the reliability of Patrizi's defence of Aristoxenus.

105 The name Euclid for Cleonides is further evidence that Galilei's *Dialogo* is Patrizi's source. See Galilei 2003, 124–125. For Cleonides's music theory, see Barker 1984–1989, vol. I (1984) 164–166; and Mathiesen 1999, 694–695.

106 The name Nicomachus in this context again provides evidence that Galilei is Patrizi's source. See Galilei 2003, 313. For Nicomachus's music theory, see Mathiesen 1999, 741–742.

> the interval from the fourth [*recte* third] to the end point [of the string] constitutes the remaining twelve parts of the abovementioned thirty parts for another [whole] tone.[107]

Patrizi adds the diagram shown in figure 4.2 to his explanation.

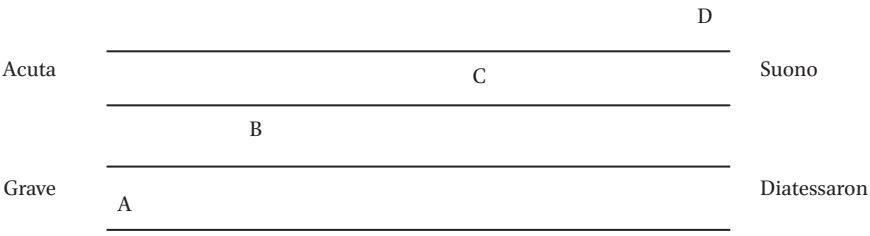

FIGURE 4.2 *A diagram of the diatonic tetrachord-species in equal temperament. From Francesco Patrizi*, Della poetica *1, 345.*

Patrizi's explanation is not entirely clear. The text still speaks of the distribution of the continuous quantity of a string, whereas the diagram seems to suggest that in fact he refers to the subdivision of the sounding interval of a fourth (i.e., *suono diatessaron*) in equal parts.[108] In the latter case, A, for example, corresponds with the note e, B with f, C with g and D with a. The discrepancy between Patrizi's text and diagram might be caused by Galilei's remark in the *Dialogo* that Aristoxenus divided the string into equal parts "with respect to the sound and not the length of a line or string, though that quantity was considered too".[109] But in the end Patrizi's definition of the diatonic species struc-

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107 *Le condizioni de' quali, secondo che Euclide e Nicomaco descrivono, furono che in ogni tetracordo, ove la prima corda con la quarta sonassero una consonanza diatesseron* (*o quarta che la diciamo*)*, fosse partita in trenta parti uguali a misura l'una come l'altra. Delle quali trenta parti sei n'andassero nello spacio della lunghezza dalla prima alla seconda, sì che riconassero tra loro un semituono, e da questo per lunghezza della corda fosse doppio spacio al primo cioè, dodici delle parti dette, che risuonavano un tuono intero; e altrotanto fosse la lunghezza della quarta corda fino alla fine, che sono le restanti dodici parti della trenta sopradette per un altro tuono.* DP, D17, 345.

108 That Patrizi studied the discipline of acoustics is proven by an undated letter to Tarquinia Molza in which he explains the acoustic characteristics of strings. See Patrizi 1975, 121–123.

109 Galilei 2003, 105. Vincenzo Galilei never gave a mathematical demonstration of his method. It remained for him—and therefore also for Patrizi—a proof by intuition. The

turally corresponds to Galilei's 'tense diatonic species' consisting of a semitone of six parts and two whole tones of twelve parts.[110]

Despite Patrizi's demonstrable interest in music theory and tuning systems, his way of dealing with the subject reveals that he is mainly interested in music's relationship with poetics. Tellingly, having dealt with the chromatic and enharmonic subdivision of the tetrachord, he abruptly breaks off his discussion of tuning and temperament:[111]

> But the way in which these intervals [in the abovementioned tetrachord-species] accommodated the five prime tones and harmonies [i.e., the modes: Ionian, Dorian, Lydian, Phrygian, and Aeolian] and the other six [newer church modes] mentioned above has remained obscure, and even had it been clear, it would have probably been a long digression to divide it up, and perhaps off our topic, which is to demonstrate only in a general way how the harmonies were paired with poetry.[112]

In this last remark, all Patrizi's scepticism about the feasibility of such an enterprise shines through. Clearly, Patrizi is much less interested in the development of music theory than Ficino, who was also a musician. The debate between Patrizi and Giovanni Maria Artusi, on the one hand, and Ercole Bottrigari, on the other, about the basis of a tuning system repeats the discussion between Vincenzo Galilei and Gioseffo Zarlino. Whereas Patrizi, Artusi, and Galilei

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string lengths in figure 4.2 are calculated for the first time by Johannes Kepler in his *Harmonices mundi*. See Kepler 1864, 164.

110 Patrizi's definition of the chromatic species corresponds to Galilei's: the chromatic species consists of two semitones of six parts and a ditone of eighteen parts. The enharmonic species consists of two half semitones (*diesi enharmonici*) of three parts and a ditone of two whole tones. Yet there is also a small discrepancy in their accounts of the subject: whereas Galilei, as an empirical and practical musician, doubles the original number of parts of Aristoxenus's tuning system as formalized by Cleonides in order to "escape annoying fractions", Patrizi, as a historical musicologist, prefers to be faithful to his Greek music-theoretical sources, in which he found a subdivision of the tetrachord into thirty parts. See Galilei 2003, 105.

111 This might be Patrizi's reaction to the Plutarchan treatise *De musica* 1135a–b, in which the author discusses the problems of establishing the intervals of the enharmonic species and dividing them in the scale of Lydian and Phrygian compositions.

112 *Ma come tra questi spacii accomodassero i cinque primi tuoni e armonie* (*doria, eolia, ionia, lidia, e frigia*), *e l'altre sei sopranominate, in oscuro è rimasto, e quando in chiaro fosse lungo fora peraventura il divisarlo, e fuori del caso nostro forse, il quale è dimostrare solo in generale come l'armonie alle poesie s'accompagnassero.* DP, DI7, 347.

based their systems on sound as an object constituted in the sense of hearing, which can be analysed into sound vibrations, Bottrigari and Zarlino based their systems on sound as an object constituted in the reason, which can be analysed in terms of numerical ratios.[113]

Patrizi's discussion of the essence of a tuning system (given at *DP, DI*7, 344–348) became the subject of debate in important sixteenth-century humanistic circles. First of all, it was severely criticized by Ercole Bottrigari, who devoted his *Il Patricio: overo de tetracordi armonici di Aristosseno; parere, et vera dimostratione* (*Patrizi: On the Harmonic Tetrachords of Aristoxenus; Appearance and True Demonstration*) to the refutation of Patrizi's defence of Aristoxenian tuning principles.[114] Subsequently, Giovanni Maria Artusi dedicated part of his *L'Artusi overo delle imperfettioni della moderna musica* (*Artusi: On the Imperfections of Modern Music*) to his defence of Patrizi.[115]

To recapitulate, this analysis of Patrizi's Aristoxenian view on tuning and temperament confirms Weber's (1958, 101–103) hypothesis about an increasing rationalization of tuning and temperament in this period. Ficino's *Compendium* started a process in which certain musical intervals, accepted as main consonances in the Pythagorean doctrine of the music of the spheres, were discarded and had to make way for the tempered intervals of equal temperament that became the basis of the tuning system of Western music at the end of the sixteenth century. Ficino himself accepted thirds and sixths as main consonances in his music theory in order to align the Timaean doctrine of world harmony with the musical practice of his time. In this practice the harmonic intervals of thirds and sixths provided the essential ingredients of an emerging tonal harmony based on triads. The music theory of Patrizi's *Della poetica* represents a next step in this process in which pure consonances are overruled by tempered intervals, which have nothing whatsoever to do with the Timaean tuning of the World-Soul. Patrizi's theory ignored the Pythagorean doctrine that musical sound par excellence represents a mathematical cosmological order.

Even though Patrizi's philosophy represents an important transformation of the doctrine of the harmony of the spheres, his actual role in the development of tuning systems is quite insignificant. This development is seen in the history of Western music theory as an evolutionary process in which the role played by ancient tuning systems gradually declines. Within this larger

113 For an analysis of the debate between Patrizi and Bottrigari, see Giazotto 1953; and Palisca 1994, 195.

114 See Bottrigari 1985, 45–56.

115 See Artusi 1603, 1–54.

picture, Patrizi's Aristoxenian account is really nothing more than a repetition of Galilei's very important contribution to this history. Given that Walker (1973–1974) has explained in detail how Galilei in his *Discorso intorno alle opera di Gioseffo Zarlino* (*Discussion around the Works of Gioseffo Zarlino*; 1589) made an unquestionably valuable contribution to the tradition of the harmony of the spheres by disproving the Pythagorean principle of inverse proportions among the ratios of the musical intervals, there is no need to go over the same ground here.[116]

In conclusion, Patrizi's music-theoretical thought is important for reflecting how Galilei's innovative ideas about the science of music circulated in the Italian academies of the late sixteenth century and, in so doing, contributed to a major shift in thinking about the relationship between cosmic order and music theory. Cassirer (1963, 184) and Copenhaver and Schmitt (1992, 195) argue, for example, that the Platonic praise of mathematics was an incentive for the birth of the new science of the seventeenth century. In addition, these scholars maintain that for Aristotle, physics and mathematics did not really mix, whereas Plato gave good grounds for a mathematical analysis of nature. With regard to the mathematical discipline of music, this model certainly holds for Galilei's experimental method combined with his mathematical instrumentalism, but not for Patrizi, a mathematical realist who dealt with Galilei as an authority whose work he could pass down without performing any experiments himself.[117] With the story of Pythagoras in the smithy, the doctrine of the harmony of the spheres offered indeed an ideal test case for a mathematical analysis of nature. Paradoxically, it also assured its own destruction: experiment showed that Pythagorean doctrine, with its universe ordered by the same numerical proportions that produce harmonies in earthly music, was simply wrong.

116 As Palisca, after Walker, explains in the entry "Vincenzo Galilei" in *Grove Music Online*, Vincenzo showed that the perfect fifth is produced by string or pipe lengths (other factors being equal) in the ratio of 3:2, by weights hung on equal strings of 9:4, and by concave volumes of 27:8. He was the first to show that the same ratio (e.g., 3:2) did not apply to all conditions, and his observation led his son Galileo to investigate the relationships further and hence to discover that the rate of vibration varied inversely with the string length.

117 For a discussion of whether Galilei was an experimental scientist, see Walker 1978; and Palisca 1992.

4.3.3 *A New Geometry*

The exposition of geometry in Patrizi's "De spacio mathematico" and *Della nuova geometria* (*On the New Geometry*; 1587) differs completely from that presented in Ficino's *Compendium*.[118] Patrizi's new geometry primarily presents a comprehensive axiomatic deductive system based on his own intuitive definitions of geometric concepts. As a religious mathematical realist, Patrizi holds that through the realization of these God-given intuitions, or innate ideas, the mathematical structure of the universe can be obtained. First of all, he develops his geometric system in order to replace that of Euclid, which in Ficino's *Compendium* had still been an integral part of the explanation of world harmony (see 2.4.3). The new geometry of Patrizi's *Nova philosophia* builds on and further develops the exposition of geometry in his earlier treatise on the subject. The focal point of his discussion of geometry in "De spacio mathematico" is his philosophical investigation of the concepts of 'continuous quantity' and 'infinity'.[119]

As Trudeau (1986, 22ff.) explains, Euclid's *Elements* had disregarded the concepts of continuous quantity and infinity, proceeding from basic assumptions, axioms, and postulates to develop a strictly deductive geometric system. Even though Euclid's axioms and postulates are faultless, Patrizi declares that the underlying philosophical foundation of Euclidean theory is not a suitable foundation for a science of geometry. He argues that although Euclid had defined all basic geometric concepts, including the point, line, surface, and solid, he failed to formulate a proper philosophical system for defining all the other geometric concepts. In the history of thought, as Dadić (2000, 173) explains, this was already often noted as a major logical shortcoming of Euclid's geometry. There is indeed an unbridgeable gap between Euclid's first seven definitions (of concepts such as the point, line, and surface) in the first book of his *Elements* and the remaining definitions of this treatise. The former definitions concern only geometric concepts, which must be understood, in accordance with Aristotle, as abstractions from real things in the world. In line with his aversion to anything Aristotelian, Patrizi holds that such a system of definitions does not meet all formal logical requirements for a scientific geometry. In addition, he argues, as a mathematical realist against Aristotelian

118 For an edition "De spacio mathematico", see Patrizi 1996. For Brickman's English translation of some of the most important passages of this work, see Brickman 1943, 224–245. For Ficino's account of geometry, see 2.4.3.

119 Brickman 1941, 62–66. For the history of the idea of infinity in the Renaissance, see Duhem 1985; Field 1997; and Koyré 1958. For Patrizi's place in this history, see Brickman 1941 47–48, 62–63; Grant 1994, 120–121; and Vasoli 1991.

scholars, that the mathematics of the natural world is not something merely abstracted from bodies by the human mind, but that bodies themselves are constituted of mathematical space.[120] Therefore, mathematics should precede natural philosophy.

In his *Nuova geometria* Patrizi defines points, lines, angles, surfaces, and solids as the subject matter of the discipline of geometry. He then goes on to argue that every space must have a minimum, maximum, and mean. At this point in his explanation, he comes to the conclusion that each space must be one-dimensional (length), two-dimensional (length and breadth), or three-dimensional (length, breadth, and depth).[121] Based on this argument, he formulates his own definitions of geometric space: (1) there is no smaller space than minimum space; (2) there is no larger space than maximum space; (3) there are smaller or larger spaces than intermediate space; (4) a point is the minimum amount of space; (5) a line is a one-dimensional space; (6) an angle is a two-dimensional space; (7) a surface is two-dimensional space; and (8) a solid is a three-dimensional space.

As Schmitt (1981, 416) has shown, Patrizi conceives of space as the first and most important undefined geometric concept which is lacking in Euclid's *Elements*. Points, lines, angles, surfaces, and solids must all be related to space as their founding concept. An example of Patrizi's procedure of deducing his basic assumptions about space as a geometric body from his own axioms is the proof provided in the *Nuova geometria* for the assumption that the point has no parts: since the point is the minimum in space, it is also the first principle in space. If the point, which is the minimum in space, were not the first principle, there would have to exist something smaller than the minimum; but the point is the minimum, and there is nothing smaller.[122] But, as Henry (2001, 145) has argued, Patrizi's conclusion, that there must be a minimal size beyond which not even geometrical lines can be divided, is absurd. Hence, even though Patrizi tries to further Euclidean geometrics, his formulation of a new foundation for the discipline of geometry is impeded by traditional ideas about the subject, the same ideas that for ages had provided the tradition of the harmony of the spheres with a solid foundation.

In contrast with Ficino, Patrizi holds that space, rather than the structure of the World-Soul, must be the prime subject of mathematics.[123] While Ficino

120 *NUP*4, II, 66^{v}.

121 *DNG* 2–3.

122 *DNG* 4–6.

123 For literature on the concept of space in Patrizi's "De spacio physico", see Henry 2001, 137–138, esp. n. 15.

dedicated only one chapter of his *Compendium* to the Timaean concept of space, the mathematization of space becomes a central concept in Patrizi's philosophy of the universe.[124] Patrizi's concept of space is inspired by *Tim.* 52a–b, where Plato argues for space as a kind of theatre ("fixed site") of the world in which a play of harmonizing cosmic powers takes place:

> The third type [of things that keep their own form unchangingly] is space, which exists always and cannot be destroyed. It provides a fixed site for all things that come to be. It is itself apprehended by a kind of bastard reasoning that does not involve sense perception, and it is hardly even an object of conviction. We look at it as in a dream when we say that everything that exists must of necessity be somewhere, in some place and occupying some space, and that that which does not exist somewhere, whether on Earth or in heaven, does not exist at all.[125]

Whereas for Ficino time and space were equivalent in his theory of world harmony, Patrizi focusses on space.[126] In line with *Tim.* 52a–b, space for Patrizi is the first principle of all corporeal things. He argues that the Pythagoreans were right in locating the origin of all things "in the finite and infinite", by which, in his opinion, they must have meant primary space. Patrizi argues, moreover, that in placing only number before matter, philosophers like Ficino did not go far enough in their conception of geometry, for space, too, is prior to matter:

> And since space is the first of all natural things, it is clear that the science of space, both of the continuous and the discrete, is prior to matter. Nor was it entirely sufficient when the Pythagoreans held only number to be prior to matter. That mathematics precedes natural philosophy follows from the same reason. It is also the mean between the completely incorporeal and the completely corporeal, not for the reason the ancients gave, that through abstraction from natural things it becomes, as it were, incorporeal, but because space is really a body that is incorporeal and an incorporeal that is a body. Whence it follows that as a body it has an affinity with natural things and bodies, as far as their dimensions are concerned; but as an incorporeal it reflects only what is really and absolutely incorporeal, and is closer to it than any natural body.[127]

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124 See Ficino, *CiT* XXXXIII, 78^{r}, corresponding to *Tim.* 47e–53b, esp. to *Tim.* 51e–52d.

125 *Tim.* 52a–b, in Plato 2000, 41–42.

126 For Patrizi's concept of time, see Schuhmann 1986.

127 *Cumque spacium sit rerum naturae omnium primum, eius Scientiam utramque, et continui et discreti, ante materiam esse, est manifestum. Nec satis ad rem Pythagoreos dixisse, dum*

To recapitulate, according to Patrizi, geometry is all about the mathematization of space. He presents space as a phenomenon necessary for the existence of all other physical phenomena.[128] Yet given that it remains unclear precisely how space as first principle must be understood, given his belief in world harmony, we will return to this issue at 4.4.2. Whereas in Ficino's philosophy a fairly coherent set of ultimate principles and powers sustained an all-inclusive vision of the universe as a musical Creation, in Patrizi's philosophy two entirely different sets of metaphysical and physical principles often conflict and therefore tend to undermine such a vision. These problems manifest themselves in the most obvious way on the level of the mathematical discipline of geometry, in which Patrizi formulated his most innovative ideas about the world.

4.3.4 *The Harmony of the Spheres as Remedy for Astronomical Chaos*

Just like Plato and Ficino, Patrizi is convinced that the number of planets, their distances from each other, and their revolutions can be determined on mathematical grounds. Plato's idea that the Demiurge, whom Patrizi also identifies with the biblical Creator, created a World-Soul in which harmonic structure is exemplified by the seven harmonic planetary orbits (*Tim.* 36d–e) must have greatly impressed him. Yet despite his belief that mathematics should precede natural philosophy, Patrizi seems to consider mathematics to be of less importance for the discipline of astronomy. In this section I will investigate whether this is a philosophical belief, or whether his limited understanding of astronomy prevents him from applying mathematical concepts to the motions of the planets. In addition, I will examine the influence of astronomical conceptions from the tradition of the harmony of the spheres on his evaluation of the important astronomical discoveries of his time. Ultimately, the discussion presented in this section will help us to answer the question of whether Patrizi used the doctrine of world harmony in an effective way to deconstruct Aristotelian cosmological dogma and to further the rise of a new mathematical view of the universe.

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numeros tantum ante materiam statuerent. Eandem hanc rationem consequitur, ut mathematica anterior sit quam physiologia. Media quoque est, inter incorporeum omnino, et corporeum omnino, non qua ratione veteres dixere, per abstractionem a rebus naturalibus incorpoream quasi fieri. Sed quia revera spacium sit corpus incorporeum, et incorporeum corpus. Unde sit ut corpore suo, cum naturae rebus, corporibusque affinitatem habeat, quo ad eorum dimensiones. Incorporeo autem suo, incorporeum quod vere et simpliciter est, quadam tenus referat: sitque illi proximius, quam corpus naturae ullum. NUP4, 11, 68r; translation modified from Brickman 1943, 244.

128 For the influence of Patrizi's concept of space on early modern thought, see Henry 1975.

Within the tradition of the harmony of the spheres up to and including Ficino, the concept of world harmony was identified with the harmoniously ordered movements of the planetary spheres around their centre, the soundless and motionless Earth.[129] One might then expect the publication in 1543 of Copernicus's *De revolutionibus orbium coelestium libri sex* to have silenced the music of the spheres, which belonged to the Ptolemaic universe.[130] However, the case of Patrizi will demonstrate that Copernican theories did not necessarily jeopardize the doctrine of the harmony of the spheres.

As Haar (1961, 487) observes, Copernicus, who was a humanistic scholar as well as a mathematician, was inspired to formulate his astronomical theories by reading Plutarch's account of the theories of the Pythagoreans and Heraclitus Ponticus about Earth's movement. Haar argues that if the Pythagoreans, who postulated a central fire around which Earth moved, could retain notions of planetary music, there is no reason why a Copernican could not think of a still harmonious, if no longer geocentric, universe. In Copernicus's *De revolutionibus*, however, musical imagery does not play the important role accorded to it by Ficino. Yet at several points Copernicus echoes traditional thought on the harmonious, circular, and regular movements of the heavenly bodies as an expression of cosmic order behind the irregular appearance of the planetary orbits.[131]

Having placed the Sun in the centre of the universe, Copernicus compares it to a lamp illuminating a fine temple, referring to Hermes Trismegistus. In defence of the heliocentric world order, he adds:

> In this arrangement, therefore, we discover a marvellous symmetry of the universe, and an established harmonious linkage between the motions of the spheres and their size, such as can be found in no other way.[132]

In part because of the vehement opposition of Christian scholars and leaders in the second half of the sixteenth century, the acceptance of the Copernican system was gradual even among astronomers.[133] Among the various objections raised—ranging from commonsense refusal to see the apparently

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129 For Ficino's discussion of astronomy, see 2.4.4.

130 Haar 1961, 487–488. For the concept of the poetic harmonic structure of the world in Copernicus and Kepler, see Hallyn 1990.

131 *ROC* I.4, in Copernicus 1978, 10–11.

132 *ROC* I.10, in Copernicus 1978, 22.

133 For a view of Copernicus as a rather conservative thinker who accepted the closed Aristotelian universe, including its material spheres, see Koyré 1958, 30ff. An account

stable Earth in rapid motion, to methodological problems of proving the Sun's central place, to theological problems raised by Earth's entry into the scheme of planets—its potential to upset the ancient doctrine of the harmony of the spheres does not seem to have been an issue. In fact, the time for speculations about world harmony was all but over, as I will now demonstrate on the basis of Patrizi's astronomical speculations, which continue to elaborate and defend the traditional view of an Earth-centred harmonic cosmos.

In order to challenge the Aristotelian representation of the universe, Patrizi begins his discussion of the discipline of astronomy by reviewing the variety and plurality of astronomical theories which had been rivals in the field since antiquity.[134] He observes that even in their treatment of a topic as simple as the number of the spheres there is considerable disagreement.[135] He reports that the Pythagoreans spoke of spheres, eccentrics, and epicycles, which were later rejected by Eudoxus, one of the *prisci theologi* who, together with Plato, received from the high priests in Egypt the 'true' astronomy and assigned twenty-six spheres to the universe.[136] Subsequently, Aristotle added another twenty-two spheres. Ptolemy then attributed two motions to the eighth sphere and others added a third, but the existence of the latter motion was repudiated by "the skilful mathematician Proclus in his *Timaeus* commentary".[137]

According to Patrizi, the situation has deteriorated in the sixteenth century, when three new astronomical theories have emerged that are very different from those of the ancients and very different from one another.[138] The first new theory is that of Copernicus, which revived Aristarchus's doctrine and, according to Patrizi, "overturned the whole of ancient astronomy and the world order".[139] Patrizi himself seems not to be impressed by this Copernican Revolution, however:

> But more recent astronomers [such as Copernicus] thought it [i.e., the Sun] had a place in the centre of the planets, by proofs that are partly naive and partly derived from a difference of view [i.e., heliocentrism].

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of the emergence of the Copernican world, including its slow reception, is given in Blumenberg 1975; Gingerich 2004; and Kuhn 1957, 185ff.

134 *NUP*4, XII, 90^{v}. The analysis of Patrizi's astronomical theory presented here builds on and further develops Brickman's (1941) one.

135 For the history of astronomical measurements, see van Helden 1985.

136 *NUP*4, XII, 90^{v}.

137 *NUP*4, XII, 91^{r}.

138 *NUP*4, XII, 90^{r}–91^{r}. For the role of the astronomer in the sixteenth century, see Westman 1980.

139 *NUP*4, XII, 91^{r}. Patrizi refers to *ROC* at *NUP* XII, 91^{v}; XVII, 103^{r}, 104^{r}; and XVIII, 106^{r}.

> They are naive when they say that it [i.e., the Sun] must sit enthroned in the centre like the king of the stars and planets.[140]

As Muccillo (1986, 676) notes, Patrizi refers in this place to the phrases "in the middle of everything is the Sun", which "governs the family of planets revolving around it", from Copernicus's *De revolutionibus* I.10.[141] Fully in line with the dominant response to Copernicus's work at the time, Patrizi treats the new system solely as an astronomical hypothesis and ignores its cosmological implications.

The second new astronomical theory is that of two scientists from Verona, Giovanni Battista della Torre and Girolamo Fracastoro, who reverted to using homocentric spheres, increasing their number to 77.[142] The third, finally, is that of Tycho Brahe, who left Earth at the centre of the universe but moved the spheres so that the sphere of Mars intersects the sphere of the Sun at two points.[143] Having dealt with ancient and new astronomical theories, Patrizi concludes that they are all problematical (fig. 4.3).[144]

Patrizi argues that recent developments in the science of astronomy have demonstrated that the oldest theories are out-of-date and fail to take into account either new phenomena or new observations. Furthermore, sixteenth-century

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140 *Astronomi vero posteriores medium inter planetas locum ei deputarunt, demonstrationibus partim puerilibus, partim ab aspectus diversitate ductis. Pueriles illae sunt, quando aiunt, eum uti astrorum, et Planetarum regem in medio sedere debere loco.* NUP4, XIX, 109r.

141 ROC I.10, in Copernicus 1978, 22. For Ficino's discussion of the place and function of the Sun in the cosmos, see 2.5.3.

142 North 2008, 299. Giovanni Battista della Torre has tried in his *Le sfere omocentriche* (*Homocentric Spheres*: 1538) to revive a cosmological model that represented the universe by sets of nesting concentric spheres, the motions of which combined to produce the planetary and other celestial motions. On his deathbed in 1534, Della Torre asked his pupil Fracastoro to complete his work. For Fracastoro's astronomy, see his *Homocentricorum sive de stellis, de causis criticorum dierum libellus* (1535) and *Homocentrica* (1538). For the theory of homocentric spheres in Aristotle's cosmology, see also Kouremenos 2010.

143 Patrizi refers to Tycho Brahe at NUP4, XII, 91r, and XVIII, 106r. That Patrizi to a certain extent was blind to the astronomical developments of his time can be illustrated by his erroneous assessment of the theories of Copernicus and Brahe, who in his view wrongly remained tied to the old and unacceptable thesis of the physical existence of a fixed but not scientifically established number of celestial spheres. With regard to Copernicus's system, he was right; with regard to Brahe's, he was wrong. For the astronomical writings of Tycho Brahe, see Brahe 1913–1929.

144 Figure 4.3 is taken from Athanasius Kircher, *Iter exstaticum coeleste* (*Ecstatic Heavenly Journey*), 3rd ed. (Wurzburg, 1671), facing 37. It reflects the work of Giovanni Battista Riccioli. For the history of the spherical universe, see Lerner 1996–1997.

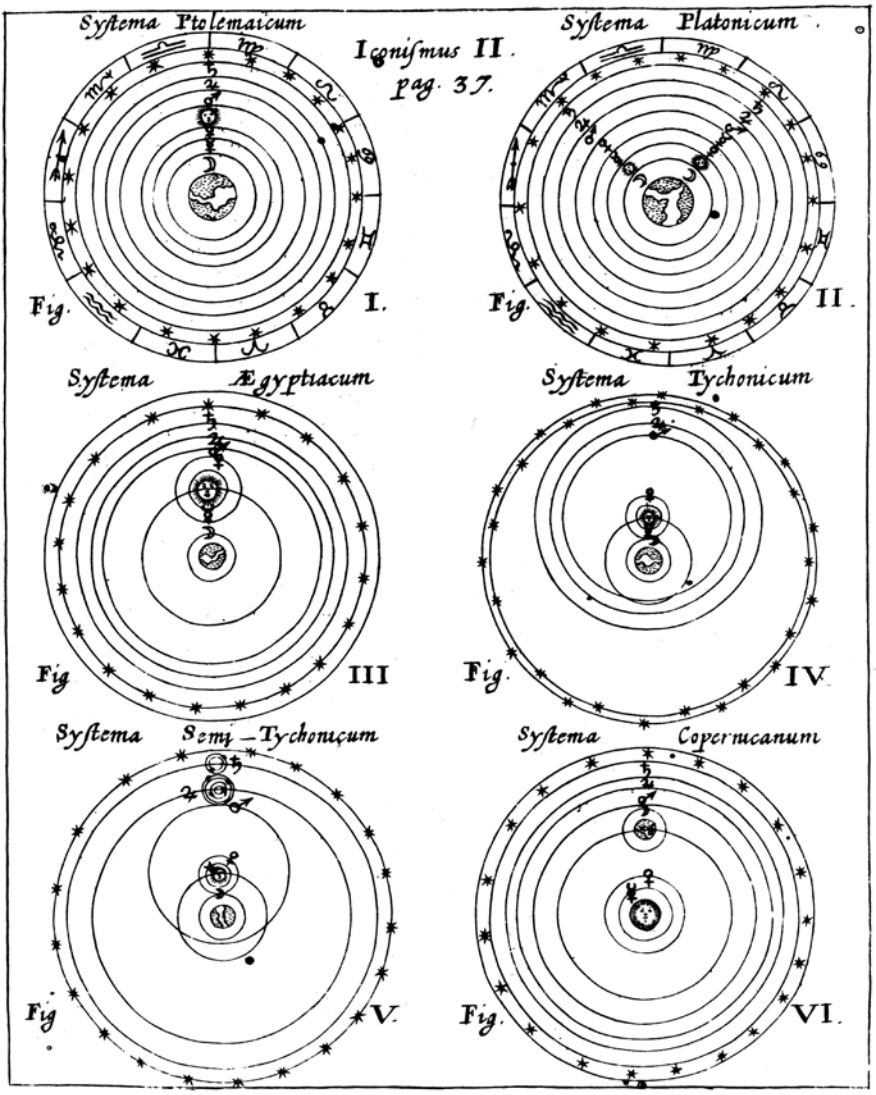

FIGURE 4.3 *A comparative chart of different world systems: Della Torre and Fracastoro's system is an extension of nos. I and II; no. IV, Tycho; no. VI, Copernicus. From Athanasius Kircher,* Iter exstaticum coeleste (*Würzburg, 1671*)*, between 36 and 37.*

astronomers make calculations based on the Copernican hypothesis that the Sun is the centre of the universe and assert that they have obtained true tables, but on the basis of his study of the writings of Tycho Brahe, Patrizi believes

that these tables are also full of error.[145] Patrizi thus has the impression that instead of providing a true insight into the structure of the universe, the plurality of astronomical theories has resulted in a new chaos. Of cosmic order, for example, Aristotelian astronomers maintained

> that the stars rise in the sky as if they had been attached as knots and knobs in a board or plank. And so the eight spheres were invented to account for this attachment. And because these were not enough to save the phenomena, for every new hallucination they added another monster. And in the whole universe, up and down, there was a great turmoil, almost, as it were, a new Chaos.[146]

As a solution to the "new Chaos" of late sixteenth-century astronomy, Patrizi proposes a return to the age-old doctrine of the harmony of the spheres, using *Tim.* 35b–36b, where the World-Soul is presented as the cause of the harmonious motion of the planets, to make his case. Following Ficino, Patrizi argues that like geometry, astronomy must deal with forms, that is, with number as magnitude, continuous quantity. Astronomy should be the study of harmonic forms in motion, and their motion must be explained by reference to their cause—that is, to the World-Soul. At first sight, I will argue, this return to the doctrine of the harmony of the spheres seems to offer a solution to the problems that the appearance of several celestial novelties, such as novas and comets, created for the medieval Aristotelian-Ptolemaic view of the world, still the dominant world picture during the sixteenth century. At the same time, however, given his limited understanding of mathematics, this metaphysical solution prevents Patrizi from understanding and solving the real problems astronomy is facing in his time. Hence, in the discipline of astronomy he fails to apply his inductive-deductive method, proposed in the introduction of his *Nova philosophia*, in order to formulate an innovative astronomy concerned with harmonic proportions between mobile quantities.

As discussed at 4.3.3, Patrizi conceives of the world first of all as infinite space. Within this infinite space the world as a kind of theatre has a finite harmonic structure, which still is predominantly described in terms of ancient, medieval, and Ficinean terms of world harmony. Inspired by Ficino's narrative

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145 *NUP*4, XII, 91r.

146 *Quod stellae in coelo, ut in tabula nodi aut clavi sint infixae, ortum habent. Ad hanc enim fixionem, et orbes octo primo sunt excogitati. Et quia non sufficerent apparentiis salvandis, addita tot deliramenta tot fuere monstra. Et totius orbis, susque deque perturbatio, et quasi novum aliud Chaos.* *NUP*4, XII, 91v; translation modified from Rossi 1981, 367.

of a *prisca theologia*, Patrizi bases his account of astronomy to a large extent on the ideas of Zoroaster and Hermes Trismegistus, who imagined the universe to consist of seven worlds.[147] Starting from the outer edge, in Patrizi's scheme the first world is the empyrean world. Within it there are three ethereal worlds: the first ethereal world contains stars; the second, the six planets; and the third, a single body, the Moon. These ethereal worlds contain the three material worlds of air, water, and earth.[148]

As we have seen in chapter 2, in the tradition of the harmony of the spheres, almost all philosophers and astronomers believed in the absolute perfection of the sphere. Accordingly, based on passages such as *Tim.* 35b–36b, they argued that in a perfect heaven all celestial bodies, planets, and fixed stars must move along circular orbits.[149] This belief was shared by Aristotle as well as by the astronomers who developed alternative astronomical systems in ancient Greece. In these systems, the movement of heavenly bodies was explained in terms of combinations of different circles. Within this tradition, philosophers and astronomers associated the perfection of God's Creation with the sphericality of the celestial bodies and the circularity of the planetary orbs. In contrast to his predecessors, however, Patrizi argues that planets and stars only appear fixed on celestial spheres as they rotate:

> Astronomers and philosophers of all nations . . . attributed circular movement to the celestial region, and hence, consensus was reached that the heavens are spherical. . . . But all the philosophers and astronomers who taught that the stars are fixed in the heavens like points on a diagram were wrong about the whole sky.[150]

Patrizi asserts that the orbits of the stars and planets are not circular and that the celestial bodies themselves are not fixed on real existing spheres.[151] In his argumentation for this innovative point of view, Patrizi uses cosmological

147 *NUP*4, 81^{v}.

148 Dadić 2000, 113–115.

149 Lowinsky 1941.

150 *Coelum confessione Astronomorum, et Philosophorum, omnium nationum . . . Hanc regionem totam in circuitum moveri . . . unanimi affirmarunt consensu . . . Et quoniam . . . ipsum esse sphaericum. Toto ergo errarunt coelo et Philosophi, et Astronomi omnes, qui stellas coelo fixas, uti nodos tabulis esse docuerunt.* *NUP*4, XI, 88^{r}–89^{r}. Translation Brickman (1941).

151 In the secondary literature, this led to a debate about who precisely instigated this revolution in thought concerning the physical existence and importance of the spheres. Rossi (1977, 1981) argued that Patrizi was a leading scholar in this revolution, and Rosen (1984, 1985) argued, in sharp contrast, that Patrizi's role was negligible.

thought from the *prisci theologi* as well as from Ficino, which he presents as an alternative to the supposedly erroneous and dangerous cosmological and astronomical view of the Aristotelians. According to Patrizi, all the monstrosities of ancient and modern astronomy derive from having accepted the absurd idea that the heavenly bodies do not move freely in a fluid space but are fixed in a finite cosmos on solid and real spheres.[152] He accuses astronomers of attributing a physical reality to mathematical concepts such as planetary spheres without further justification. The variety and irreconcilability of the various descriptions of the universe resulting from this unfortunate custom create, in Patrizi's opinion, an untenable situation, because the resulting theories could be either all false or all true.

Patrizi concludes that the desire to invent all-inclusive purely mathematical theories for the position and movement of the heavenly bodies has led to disordered astronomical theories, in which errors are disguised for the sake of the theories themselves. In order to surmount the difficulties of contemporary astronomy and to overcome the 'cosmological chaos', Patrizi recalls the Pythagorean doctrine of the harmony of the spheres.[153] In accordance with *Tim.* 35b–36e and *Tim.* 38c–39e, he argues for explaining planetary motion in terms of the harmonic structure of the World-Soul:

> But as for this slowness and speed and the other motions of the planets, the Souls and Minds create them at various times, because they understand that it benefits the nature of things, and because they are offering themselves as obedient servants of the Providence of the highest God.[154]

Ultimately, it is the harmoniously created Soul of a particular planet that causes its movement, be it simple or complex. Furthermore, the ordered movement of the planetary spheres in the heavens is a sign of God's Providence. According to Patrizi, replacing the Aristotelian concept of real existing crystalline spheres

152 *NUP*4, XII, 91^{r}.

153 This way of reasoning also has consequences for the traditional medieval belief that real existing spheres rather than mathematically determined motion would produce harmonious sound. In fact, Patrizi follows Ficino, who, in his account of the music of the spheres, left it open whether these spheres were mathematical places or existing physical objects. For Ficino's account of astronomy, see 2.4.4.

154 *Tarditatem autem, et velocitatem hanc, et motus alios planetarum animi, atque mentes variis temporibus conficiunt, quia intelligunt, naturae rerum tunc ita expedire, et tunc se se ministros, summi Dei providentiae, obsequentes praebent.* *NUP*4, XII, 90^{v}. Translation Brickman (1941).

with the Pythagorean-Platonic concept of planetary spheres as mathematical descriptions of their orbits will restore the discipline of astronomy:

> But if that vain and impossible presupposition [of the physical existence of spheres] is eliminated from astronomy, everything will again be intelligible. The stars will be given a free course in the heavens and all the phenomena will be saved. If the stars are understood to be—as in reality they are—carried by their own Spirit, moved by their own Soul, governed in order by their own Intellect . . . then we have to conclude that since they are animals, and divine animals at that, the stars must necessarily have a divine Soul and divine Life and divine Intellect.[155]

In sum, in order to transform the confused and chaotic state of affairs in the discipline of astronomy into something intelligible, Patrizi thinks it will suffice to eliminate the theory of physically existing spheres and resurrect the Timaean doctrine of celestial bodies as divine and living parts of a cosmic animal, endowed with an Intelligence guided and supported by a planetary Soul which participates in the harmonic order of the World-Soul.[156]

Subsequently, Patrizi establishes the order of the planets on the basis of a thought experiment with sunlight reflecting on the Moon, Venus, and Mercury, which he illustrates with a geometric drawing (fig. 4.4).[157] With this figure Patrizi demonstrates how light rays coming from the Sun fall on Venus and Mercury. Venus is placed between A and C, whereas Mercury is placed between B and D. In line with Ptolemaic views of the cosmos (fig. 4.3, no. 1), Patrizi concludes that the Moon and the planets Venus and Mercury are moving in their orbits between the Earth and the Sun.[158] So, experience proves the Platonic order (fig 4.3., no. 2) wrong.

Patrizi resumes this topic later and argues that the motion of the planets is certainly more complex than that of the fixed stars. However, such motion is seen only in Mercury, Venus, Mars, Jupiter, and Saturn, and Patrizi concludes

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155 *Quae una et vana, et impossibilis positio, si ex Astronomia dematur, omnia erunt plana. Et liber per coelum sideribus cursus dabitur, et appetentiae omnes salvabuntur. Si intelligantur astra, ut revera sunt, spiritu proprio vehi, animo moveri, intellectu ordine regi: . . . Concludendum igitur, sidera, quia sint animalia, et quidem divina, et divinum animum, et divinam vitam, et divinum intellectum habere et esse necesse.* *NUP*4, XII, 91^{v}; translation modified from Rossi 1981, 367.

156 *Tim.* 30c–31a.

157 Given that Patrizi's experiments were never actually put to the test, they can be better considered as thought experiments. Unlike some of his contemporaries, moreover, Patrizi's use of geometric drawing fails to serve the purpose of proper mathematical deduction.

158 *NUP*1, VII, 16^{r}.

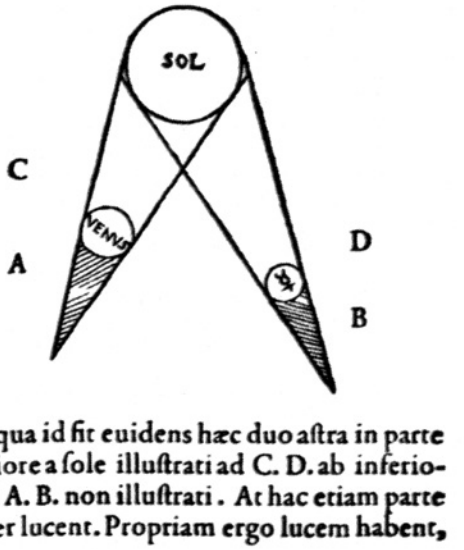
SOL
C
A
D
B
In qua id fit euidens hæc duo aſtra in parte
ſuperiore a ſole illuſtrati ad C. D. ab inferio-
re vbi A. B. non illuſtrati. At hac etiam parte
ſeinper lucent. Propriam ergo lucem habent,

FIGURE 4.4 *A diagram demonstrating the planetary order on the basis of the reflection of sunlight. From Francesco Patrizi*, Nova philosophia *I, VII, 16r.*

that according to a criterion of complex motion, only these five celestial bodies can be considered true planets. In contrast to *Tim.* 38c–39e and to Ficino's interpretation of the same passage, he argues that the Sun cannot be considered a planet, because it moves quite regularly and does not deviate from the ecliptic. The Moon can also be considered to have regular motion. Unlike the Sun and the Moon, the five planets sometimes move quickly, sometimes slowly, or even appear to be standing still. Nevertheless, they do not wander, because, as Patrizi often notes, "God and nature never do anything in vain".[159] Ultimately, the harmony of the spheres is still the best way to describe planetary motion as an expression of *concordia discors*:

> For the Sun and the Moon do not have the same movements in the ethereal realm, and the individual planets have their own [movements] by which they are themselves preserved and sound together the harmony of the world and preserve it.[160]

159 *NUP*3, V, 59r.

160 *Neque enim in aethere, Sol, et Luna eosdem habent motus, et planetae singuli, suos habent proprios, quibus, et ipsi conservarentur, et mundi harmoniam concinerent, eamque servarent. NUP*4, XXIX, 142r–142v.

In sharp contrast with Ficino, who associated cosmic order with finiteness, Patrizi, as Brickman (1941, 62) notes, unequivocally states that the universe is infinite.[161] In considering the question of whether a void can be found only inside the visible heavens or also outside them, he simply cannot come to another conclusion. He argues that at the edge of the visible universe we are able to see the twelve constellations corresponding to the twelve signs of the zodiac and the other fixed stars. Since they are bodies, they occupy a place, and since they occupy a place, there must be a point that is at the farthest remove from the observer's eye (fig. 4.5).[162]

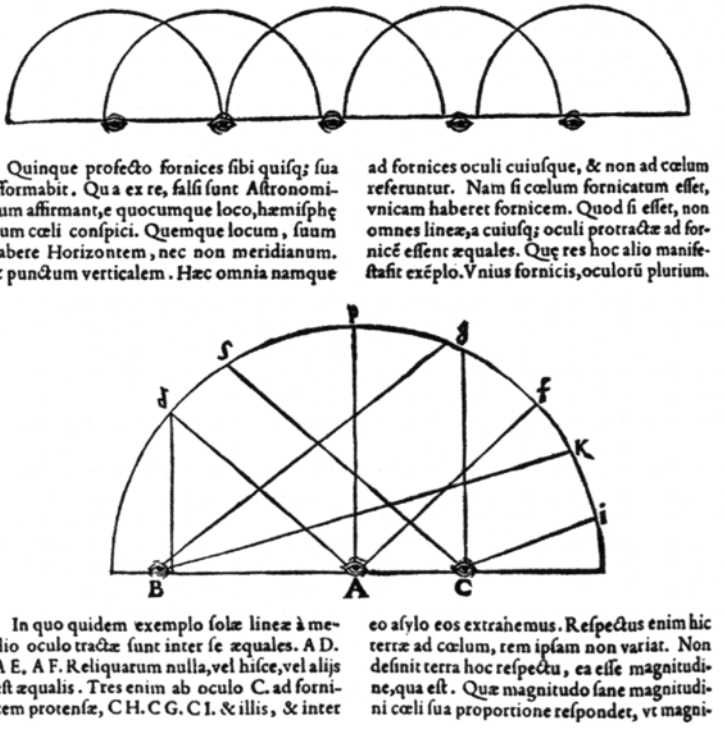
Quinque profecto fornices ſibi quiſq; ſua
efformabit. Qua ex re, falſi ſunt Aſtronomi-
dum affirmant, e quocumque loco, hæmiſphę
rium cœli conſpici. Quemque locum, ſuum
habere Horizontem, nec non meridianum.
& punctum verticalem. Hæc omnia namque
ad fornices oculi cuiuſque, & non ad cœlum
referuntur. Nam ſi cœlum fornicatum eſſet,
vnicam haberet fornicem. Quod ſi eſſet, non
omnes lineæ, a cuiuſq; oculi protractæ ad for-
nicẽ eſſent æquales. Quę res hoc alio manife-
ſtabit exẽplo. Vnius fornicis, oculorũ plurium.
B
A
C
In quo quidem exemplo ſolæ lineæ à me-
dio oculo tractæ ſunt inter ſe æquales. A D.
A E. A F. Reliquarum nulla, vel hiſce, vel alijs
eſt æqualis. Tres enim ab oculo C. ad forni-
cem protenſæ, C H. C G. C I. & illis, & inter
eo aſylo eos extrahemus. Reſpectus enim hic
terræ ad cœlum, rem ipſam non variat. Non
deſinit terra hoc reſpectu, ea eſſe magnitudi-
ne, qua eſt. Quæ magnitudo ſane magnitudi-
ni cœli ſua proportione reſpondet, vt magni-

FIGURE 4.5 *Two diagrams demonstrating that a sphere of fixed stars is an optical illusion. From Francesco Patrizi,* Nova philosophia *IV, XIII, 94v.*

This point is necessarily at the reverse side of the body, and this back cannot be anywhere else but in space. Thus, there must be space beyond the stars, which implies that there is space outside the visible world. In short, Patrizi rejects

161 *NUP*4, XI, XII, 88r–89r.

162 *NUP*4, 94v.

the existence of a crystalline eighth sphere at the border of the heavens and argues for the existence of extracosmic infinite space. Just like Ficino before him, Patrizi explains with the diagram in figure 4.5 that the eye is an unreliable instrument for astronomical observation.[163] Consequently, the idea of an exterior sphere of fixed stars enclosing the whole world is merely an optical illusion.

Notwithstanding his critical attitude toward the value of astronomical observation, Patrizi finds further proof for his view in the recent astronomical discoveries of Amerigo Vespucci (1451–1512) and Andreas Corsalius (b. 1487), who had discovered that there is no solid moving sphere of the zodiac with stars nailed into it.[164] Following Corsalius, Patrizi demonstrates that the whole idea of the fixed stars is based on the erroneous assumption that black holes in the sky were stars:

> Near the Antarctic pole, which is blacker, in many places of the sky it appears as if the heavens have been in some way perforated. And one thinks these are the thinner parts of the sky, since they are carried uniformly at the same time along with the other stars from rising to setting. And one does not think this could happen unless those darker areas were fixed in the sky like the stars. We say first in response to this that neither Amerigo Vespucci nor Andreas Corsalius nor other sailors who have carefully observed things at the South Pole made any mention of these darker stars. But let them be there. All the astronomers would say that in the sky there are five nebulous stars [i.e., nebulae] and nine obscure [ones]. Thus, it is no wonder if those darker ones were also said to be obscure stars.[165]

The traditional idea of a crystalline sphere carrying fixed stars is based on the assumption that stars are holes in the crystalline enclosure of the cosmos.

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163 For Ficino's discussion of optical illusions in the field of astronomy such as parallax, see 2.4.4.

164 For Amerigo Vespucci's astronomical discoveries, see Dekker 1990, 535–542; and for those of Andreas Corsalius, see Dekker 1990, 545–547; and Lefevre 1970.

165 *Prope polum Antarcticum nigriorem quendam, plerisque in locis coeli apparere ac si coelum quodammodo esset perforatum. Quos putat rariores esse coeli partes: quae simul cum aliis stellis ab ortu in occasum uniformiter ferantur. Quod fieri non posse existimat, nisi ii nigriores uti stellae in coelo sint infixi. Huic dicimus primo. Neque Americum Vespuccium, neque Andream Corsalium, neque alios nautas, qui diligentes res Antarctici notarunt, ullam de his nigrioribus fecisse mentionem. Sed sunto ibi, Astronomi omnes, farentur in coelo, nebulosas stellas esse quinque obscuras novem. Non est igitur mirum, si nigriores ii stellae quoque obscurae esse dicantur.* NUP4, XII, 90^{v}.

Recent observations of heavenly phenomena, however, prove that stars move freely in space. Furthermore, the discoverers reported that stars have different vertical distances when seen by an observer on Earth. Since stars differ in their distance from Earth, they cannot be inscribed in a sphere; hence, the universe cannot have an exterior wall—that is, a crystalline sphere of fixed stars.

Brickman (1941, 62) has explained that both Patrizi's interest in the scientific discoveries of his time and his idea of infinite space seem to endorse a somewhat romantic ancient view popular again in his day: the infinite contains the finite and stretches on endlessly. According to Patrizi, the finite world has a centre, which is also the centre of the infinite world, and rays emanating from the centre will all move off to infinity. This view of the infinite received fresh impetus from the geographic growth of Earth through the discoveries and explorations of the fifteenth and sixteenth centuries. Since Earth had turned out to be so much larger than had been thought, it would not be far-fetched to believe that the universe, too, extends endlessly.

After his demonstration that the heavens are infinite, Patrizi continues his discussion of its uniqueness. He argues that if there are no spheres, then there are no boundaries between the individual parts of the universe.[166] In arguing that the universe is homogeneous, Patrizi undermines a further Aristotelian astronomical dogma: the idea of the incorruptibility of the heavens.[167] His study of observers' accounts of the new star of 1572 leads him to deny this doctrine. He argues that if new stars can suddenly appear in the firmament, then the heavens must experience change and corruption like everything else in nature.

Loosely following the structure of the *Timaeus* in the *Nova philosophia*, Patrizi subsequently addresses the topic of Earth's rotation, discussed at *Tim.* 40b–c. Plato had argued here that Earth, as a planet, possesses a soul as well as a body. Hence, it may be expected to possess a proper movement of axial rotation, by the same rights as the stars and planets. The commentary tradition debated the consistency of this conclusion with the rest of the astronomical scheme presented in the *Timaeus*, but without reaching any agreement.[168]

Patrizi argues that the stars, rather than being fixed to a sphere, are scattered throughout the heavens, some close, others more distant. Such a concept negates the traditional geocentric view that the fixed stars revolve around a

166 *NUP*4, XIV, 96^{v}.

167 For Patrizi's dismissal of the doctrines of the incorruptibility and eternity of the heavens, see Vasoli 1999.

168 The rotation of Earth is dealt with at *Tim.* 40b–c. Patrizi's view of Earth's rotation is inconsistent: in a discussion of time in the *NUP* he mentions both its daily rotation and its standing still. See *NUP*2, XXI, 45^{v}–46^{r}.

fixed Earth. If this were the case, Patrizi objects, the fixed stars scattered in the heavens would have to describe different orbits and move at different velocities.[169] Because this situation would lead to absurdities, he concludes, it can only be the case that stars do not revolve around Earth and that Earth rotates; consequently, the revolution of the stars around Earth can only be an illusion. Heraclitus Ponticus and Aristarchus of Samos, notes Patrizi, already endorsed this position, which was adopted again in the sixteenth century by Copernicus. Every day, by means of rotation, Earth covers a long path, but it is certainly much shorter than the path necessarily traversed by even the closer stars if they are to move around a stationary Earth. Hence, Patrizi finds it much more acceptable to uphold the view that Earth rotates and that the rotation of the stars is only an illusion, comparable to the illusion of the shore's movement from the perspective of a viewer sailing along it in a boat:[170]

> Let us conclude, therefore, that the stars too move from rising [i.e., east] to setting [i.e., west]. And because the speed seems impossible, it was also necessary that Earth moves, by an opposite motion from west to east. And so it will happen such that once one thing contrary in nature is posited, the other is too,[171] and the former will not be able to be removed, and with their speeds balanced—the speed of the one with the slowness of the other—right and complete harmony will be established, and there will be a third mixed movement of the planets such as rise in part in the east and in part in the west, as we will consider in the following book. But there still remains one question: why do both the stars and Earth not move in a straight line but in a circle? For fire by nature seems to seek to rise [and] Earth to sink. They imitate the inherent movement of their Movers.[172]

169 *NUP*4, XVII, 103[r].

170 *NUP*4, XVII, 103[v].

171 In this sentence, Patrizi formulates cosmic principle 6. For the seven cosmic principles in Ficino's philosophy, see 2.3.2.

172 *Concludamus igitur, et sidera moveri ab ortu in occassum. Et quia velocitas ea impossibilis est visa, terram quoque necessarium fuit moveri, motu contrario ab occasu in ortum. Atque ita fiet, ut uno contrario in natura posito, ponatur, et alterum, et impossibile illud tolletur, et possibile hoc admittetur, et temperatis motibus, velocitate unius cum tarditate alterius, recta constituetur harmonia et perfecta, et tertius dabitur planetarum quasi mistus motus, qui ab Oriente oriatur partim, partim oriatur ab Occidente, prout sequenti contemplabimur libello. Verum adhuc una superest quaestio. Quam ob causam, tum astra, tum terram non in rectum, sed in circulum moveantur. Ignis enim natura sursum petere videtur, terram deorsum? Motorum suorum motum intrinsecum imitantur.* *NUP*4, XVII, 104[v].

To summarize, Patrizi's defence of the doctrine of world harmony is based on a mixture of traditional and contemporary astronomical and cosmological thought. Earth, in his system, is still at the centre of the cosmos, and the Sun rotates around Earth. But Earth is not immobile: it rotates on its axis, carrying with it the air and water on its surface. The planets and stars move freely in space, moved by a Soul within them which partakes of the World-Soul. Even though the Moon is not included among the planets, its influence on earthly tides still functions as a scientific model for the influences of the other planets on life on Earth. There are no discrete zones in the heavens separated by solid spheres. Heaven is one and continuous. Like all other things, it is made up of four elements (space, light, heat, and fluidity), and it moves neither as a whole nor in separate parts. All the motions belong to the stars themselves rather than to a crystalline sphere that acts as the bearer of their movements. The movement of the stars is apparent and depends on the daily movement of Earth on its axis. The stars are not all at the same distance from Earth. They are scattered in infinite space rather than fixed to the outer wall of the cosmos.

Despite all his differences with Ficino's account of the harmony of the spheres, ultimately Patrizi agrees that there must be a harmonic blueprint with which God endowed His Creation. This harmonic structure guarantees not only the orderly motions of the heavenly bodies but also the change of seasons, the flow of rivers and the tides of the sea, the direction of winds, the growth of plants, and many other phenomena in nature that he envisages as directly related to the heavens. Astronomical phenomena in the late sixteenth century will again make sense if explained in terms of the Soul and Mind of the heavenly bodies, which are expressed in their motions.[173] Planetary motion can be understood only as an exemplification of an archetypal harmonic model in the Mind of the Creator:

> And they [i.e., the planets] are not, as the majority of astronomers and philosophers hold, inanimate bodies. But they are, as Zoroaster indeed called them, and after him Plato and Aristotle, animate beings. Thus, by a nature which performs their actions, by a Spirit which is their carrier, by a Soul which initiates their movements, and by an Intellect from which the whole order of things comes forth and upon which it depends, they themselves live, are carried, act, obey the Founder's will, regulate the harmony of the universe; and to benefit the world, they determine their

173 *NUP*4, XVIII, 105^{v}.

> paths and they perform their other actions and flow into the seeds and spirits of the immensely varied generation of our own natural things.[174]

Analysing Patrizi's account of the discipline of astronomy leads to the following observations. First, the debate between Patrizi and his old and new opponents reflects an ongoing discussion among astronomers about whether an instrumentalist mathematical explanation, in terms of forms in motion, is sufficient for an understanding of the universe. Adherents of such an approach try to establish a geometrically structured system of planetary motion with a certain explanatory power which allows the prediction of astronomical phenomena. Their opponents, the mathematical realists, conceive of the universe as a living organism and argue that a mathematical explanation of planetary motion should be about the world as it is. Neoplatonist adherents of this latter point of view like Ficino and Patrizi firmly believed that an explanation of planetary motion in terms of a World-Soul suited the world as it is.

Like Plato at *Tim.* 40c–d and Ficino on the same passage, Patrizi argued that the movements of the heavenly bodies were too complicated for a precise mathematical description. Only when scholars like Johannes Kepler tried to apply mathematical concepts to the motions of the planets did the tradition of the harmony of the spheres become a real source of inspiration and influence for the development of the new mathematical science of the Scientific Revolution.[175] Hence, like Rosen (1984, 305), I am of the opinion that Patrizi in his account of the planetary spheres can best be interpreted as a traditional thinker, instead of—as Rossi (1977, 401) has argued—an innovative thinker who freed cosmology from the boundaries of physically existing spheres.

Second, the debate on the discipline of astronomy in the *Nova philosophia* reflects an ongoing discussion about the status of observation in a philosophy of nature. Patrizi's opposition to all old and new astronomical views is partly based on his refusal to accept geometric forms for celestial orbits that were obtained by observation as true facts. Like Ficino, he based this

174 *Suntque non uti Astronomorum, et philosophorum plerumque vulgus existimavit, corpora inanima. Sed sunt, ut vere eos appellavit Zoroaster, et post eum Plato, et Aristoteles, animalia. Igitur, et natura quae actiones eorum peragit, et spiritu, qui eorum est vector, et animo, qui motus eis dat initia, et intellectu, a quo omnis rerum venit ac pendet ordo, ipsa vivunt, et feruntur, et agunt, et Conditoris nutibus obtemperant, et universi harmoniam contemperant, et ut mundo expedit, cursus obeunt, et actiones alias suas peragunt, et generationis tam variae rerum nostratium, semina, atque spiritus influunt.* NUP4, XVIII, 105^{v}, 106^{r}. Translation Brickman (1941).

175 For Patrizi's influence on Kepler's *A Defence of Tycho against Ursus*, see Jardine 1984, 98–100, 102, 154–166, 160.

methodological view on sources such as Plato's *Republic* VII at 529b, which claims that observation of the heavens does not yield genuine knowledge but only superficial knowledge, and that truth can be perceived only by intellect and thought. In line with *Tim.* 37e–38c and Ficino's explanation of the same passage, Patrizi argues that observation of physical nature is meant only to lead man to the perception of the intelligible archetypal harmonic order of the world.

In conclusion, Patrizi's plea for a revival of the Pythagorean conception of world harmony can best be interpreted as a conservative response to the variety of theories offered by contemporary astronomy and cosmology. Given his close contact with members of the Sacred Congregation of the Index of Forbidden Books, Patrizi must have been aware of the fact that choices such as the one between the Earth and the Sun as the centre of the universe did not simply involve problems in astronomy, nor was it ever represented as merely the choice between two different solutions to the problem of formulating an all-inclusive law of planetary motion.[176] While he helped to destroy part of the Aristotelian-Ptolemaic view of the cosmos, the new cosmologies, which were rivals for the field, must have given him the sensation of a radical uncertainty because they involved far-reaching consequences for the all-embracing world-view of a God-created harmonic, meaningful, and purposeful world.

4.4 A Sixteenth-Century Interpretation of the Harmony of the Spheres

4.4.1 *The Harmonic Structure of the World-Soul*

As I have discussed at 4.3.2, Patrizi's music theory reflects a stage in the history of Western thought in which music theory is emancipating itself from philosophical and cosmological speculation. In this section, I will address the other side of the equation: how philosophical theory increasingly starts to emancipate itself from musical metaphors. Whereas Ficino interpreted the cosmogonic narrative of the Creation of the World-Soul (*Tim.* 35b–36b) through the lenses of the myth of Er and the *Dream of Scipio*—which enabled him to attribute the Pythagorean musical scale to the planets and to conceive of earthly music as an echo of the harmony of the spheres—Patrizi completely abandons this reading.[177] Ficino had been convinced that the universe was ordered by the same numerical ratios that produce consonances in earthly music. This

176 For this debate, see 4.4.3.

177 Further proof for this assertion is found in the fact that Patrizi bought a copy of Macrobius's *Commentarii in somnium Scipionis* (*Commentary on the Dream of Scipio*) on Cyprus but never left any traces of his study of this source in his texts. For Patrizi's copy of

order, moreover, was expressed in the most perfect way in the planetary orbits. In sharp contrast, Patrizi holds that since a correspondence between cosmic order and music theory is indemonstrable, Pythagorean music theory should have nothing to do with a philosophy of nature. Consequently, he did not discuss the mathematical discipline of music in the *Nova philosophia*. In addition, in the *Della poetica* he adopted Galilei's Aristoxenian mathematical instrumentalist view by arguing that musical intervals should be defined in terms of sound instead of numbers and Pythagorean ratios. Thus, Patrizi is one of the first scholars to abandon the long tradition in which philosophers employed various music-theoretical concepts as an external reference point on which to anchor their basic beliefs.

Despite the long tradition of using cosmic imagery of a musical nature, Patrizi clearly struggles to make sense of the Timaean conception of the harmonic structure of the World-Soul. The notion of the World-Soul, which was reintroduced into philosophy by Ficino, enjoyed great popularity with most of the Neoplatonic philosophers of nature during the sixteenth century. Strikingly, Patrizi dedicates only a few pages of the *Nova philosophia* to this doctrine. Nevertheless, in his philosophy as a whole Patrizi demonstrates an extensive knowledge of the Timaean doctrine of the World-Soul as the cause of harmony in cosmos, man, and his music.[178] In the third section of his *Nova philosophia*, the "Pampsychia" ("All-Soul"), Patrizi summarizes Ficino's theory of the nature of Soul, which occupies a middle position between the incorporeal and the corporeal, between the intelligible and the sensible realm.[179] This discussion contains the following historical explanation of the place of the World-Soul in the Platonic corpus:

> But in his exoteric philosophy, Plato explains the World-Soul twice: once in his *Philebus* and for a second time very satisfactorily in the *Timaeus*. But he took this [Timaean account] from the short treatise of Timaeus Locrus, of which Plato wished to be, as it were, a paraphraser in his own *Timaeus*, for he entitled his book *On the World-Soul* and has these words

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Macrobius's *Commentarii in somnium Scipionis* (number 40 in the list of his Greek manuscripts), see Muccillo 1993, 87.

178 See, e.g., Brickman 1941, 40–44; Deitz 1999, 152–154; and Vasoli 1993. This section builds on and further develops Brickman's analysis of Patrizi's "Pampsychia".

179 For Ficino's theory of the World-Soul, see 2.5.1, and for his theory of the human soul, see 3.4.1.

> besides, speaking of the world made by God as . . . "one, only-begotten, perfect, ensouled and rational".[180]

Even though it is not completely clear whether this passage must be taken as strictly historical or as a component of Patrizi's own view, it is evident that the concept of a World-Soul is still important in the context of his cosmology. Yet despite its great popularity among contemporary philosophers of nature, Patrizi takes a critical stance towards the many ways in which this quite elusive concept is used.

As Brickman (1941, 40) observes, first of all, Patrizi criticizes some of his predecessors for the careless way in which they formulated their conceptions of a World-Soul. For example, he disapproves of the way in which terms such as *animus* and *psyche* crept into the *Timaeus* commentary tradition in interpretations of the concept of the World-Soul, since they obscure the true meaning of the concept.[181] According to Patrizi, *psyche* has something to do with cooling, while *animus* is related to wind. Both terms are associated with breathing, the wind of breath having a cooling effect on internal heat. Patrizi argues that if anything coexists with the nature of the World-Soul, it is heat, and the Soul is certainly anything but wind. Implicitly, he is criticizing Ficino here and his frequent use of the association between Soul, Spirit, and the element of air in his philosophy.[182]

Patrizi argues further that since the term 'World-Soul' and its connotations are so deeply rooted in the philosophical language of traditional metaphysics, and since it is extremely difficult to devise new terms for such a well-established concept, he is given no other choice than to continue to use it in his philosophy. In addition, whatever the difficulties in formulating a coherent theory of the World-Soul, Patrizi is still convinced of the value of such an endeavour, and he encourages himself by saying: "we who are setting up a veritable and

180 *Sed et in Exoterica sua philosophia Plato animum mundanum bis explicat: semel in Philebo, secundo in Timaeo late satis. Quod tamen ex Timaei Locri libello, cuius in suo Timaeo quasi paraphrastes Plato esse voluit, desumpsit. Nam is et libellum suum de animo mundi inscripsit, et haec in super habet verba, de mundo loquens a Deo producto: . . . "Unum, unigenitum, perfectum, animatum, et rationalem."* *NUP*3, IV, 55r. Inspired by Ficino, *TP*, III.ii.6., in Ficino 2001–2006, 1 (2001): 240–243.

181 *NUP*3, IV, 49r. For an introduction to ancient theories about *anima* and *animus*, see Onians 1954, 168–173.

182 For Ficino's theory of the relationship between soul, spirit, and air, see 2.5.3.

comprehensive philosophy must not despair or desist in the task, however large and difficult".[183]

In order to formulate his own concept of World-Soul, Patrizi makes the distinction between *anima*, by which he means the larger life force, and *animus*, by which he means the rational Soul.[184] According to Patrizi, the human soul has some properties peculiar to itself, which cannot be classified with the properties of *anima* or *animus*. Therefore, Patrizi deals only with the souls of the world, planets, stars, and elements in the context of his cosmology and philosophy of nature. The separation of the human soul from the World-Soul conveys the split in the universe between external nature as an object and internal human nature as a subject of knowledge.[185] Patrizi then applies the term *animus* to that being in nature that directs and controls the behaviour and motion of bodies. But unlike Ficino, Patrizi admits that this doctrine has always been controversial, because it easily tends towards the heretical belief of pantheism.

Subsequently, Patrizi continues his argument for the mediated presence of God in the plurality of His whole Creation with the observation of the motion of the heavenly bodies, in order to discover its First Cause.[186] This choice reflects *Tim.* 47a–d, where Plato has argued that by observation of planetary motion one can discover the harmonic archetypal model of the Creator. In Patrizi's Counter-Reformation context, in order to avoid the risk of being accused of pantheism, he begins his explanation of the concept of a World-Soul by arguing that it is fully compatible with biblical doctrine, as both postulate God as the First Cause of the universe:

> So let us attack this matter with new vigour in the name and divinity of God, the greatest and best. It has already been demonstrated to us that everything came from the one God in the very beginning—that is to say, the first Unity, and all unities in it and outside it.[187]

Like Ficino, Patrizi argues that God's presence is mediated by the World-Soul in His whole Creation. He further holds that this form of mediation can be

183 *Non est tamen nobis, qui veram atque integram philosophiam condimus, aut desperandum, aut in opere quantumvis magno, atque arduo, desistendum.* NUP3, IV, 49r.

184 Kristeller 1964, 122.

185 Patrizi's transmission of the Pythagorean-Platonic idea that music has the power to shape and condition the human soul (*musica humana*) will be addressed in chapter 5.

186 NUP3, I, 49v.

187 *Hanc ergo rem, Dei Optimi Maximi nomine, ac numine invocato, novo labore aggrediamur. Profecto, demonstratum iam nobis est, ab uno Deo, primissimo, omnia provenisse, Primam scilicet Unitatem, et in ea, et extra eam, omnes unitates.* NUP3, I, 49v. Translation Brickman (1941).

described by the seven cosmic principles underlying the cosmology of Ficino's *Compendium* (see 2.3.2). Patrizi lists his main set of principles in the second book of his *Nova philosophia*, the "Panarchia" ("All-Principle"), while other principles are dispersed in other parts of the treatise:[188]

1. The world is created.[189]
2. The cause precedes its effect and is superior to it.[190]
3. The whole precedes the part.[191]
4. *Pluribus unum*: unity precedes plurality.[192]
5. Nature makes no leaps; in other words, the progression of being is continuous.[193]

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188 The definition of a principle is given at *NUP*2, VII, 13^{r}, and *NUP*3, III, 53^{r}. The epistemological priority of a principle is in line with Patrizi's anti-Aristotelian proposition, according to which understanding of the principles of things is not arrived at analytically at the end of the cognitive process but is rather the very foundation of that process. Reason and sense perception move along the same way, and one of the distinctive features of Patrizi's 'new philosophy of the universe' is its simultaneous consistency, in his view, both with the laws of thought and with the evidence of the senses. See Brickman 1941, 71–72; and Puliafito 1987, 1988.

189 *Quid autem illud fuit, quod summus opifex primum omnium extra se produxit? Quid aut debuit, aut expediit prius produci, quam id quo omnia alia, ut essent eguerunt, et sine quo esse non poterunt, ipsum autem sine aliis esse poterat, et aliorum nullo eguit ut esse*. (But what was it that the great Maker out of all things first produced outside himself? What was necessary or expedient to be produced before that which everything else needed for the purpose of being and without which they could not be? Yet He Himself could exist without the others and needed none of the others in order to exist.) *NUP*4, I, 61^{r}.

190 *Effectus enim, a causa quidem semper venit, non autem cum ea idem remanet*. (For the effect always comes from the Cause, but it does not remain with the Cause.) *NUP*2, X, 22^{v}. *Omne enim producens, praestantius est producto. Productum tamen semper simile est producenti*. (For in producing everything, it [i.e., the Cause] is more outstanding than what is produced. However, what has been produced is always like what is producing.) *NUP*1, III, 5^{v}.

191 *Patuit quoque, continuum sui natura, omni divisione antiquius ac prius esse*. (He also showed that a continuum by its nature is more ancient than and prior to any division.) *NUP*4, II, 68^{r}.

192 *Ergo fas nullo modo est, ut unum, idem sit cum multitudine, quae illius proles est, et effectus*. (Thus, it is in no way right that One be the same as plurality, which is the descendant of the former and the effect.) *NUP*2, XI, 22^{v}.

193 *Natura autem omnis uti postea videbimus, est animi proles, sicuti animus est proles intellectus, et hic proles opificis intellectus. A quo, proles hae, iussa capientes, eta principio sunt operatae, et in praesens operantur, et in posterum sunt operaturae, et cathena hac plusquam aurea connexa sunt omnia, usque ad terram, atque universi centrum, ita ut nihil sit timendum, motu hoc circulari, aut partes eius ruituras, vel gravitate sua moveri sit desitum*. (But

6. Whenever one of a pair of logical contraries is said to exist, its opposite number must exist as well.[194]
7. *Concordia discors*: cosmos is a reconciliation of opposites.

As Deitz (1999, 140ff.) has analysed the first six principles in detail, there is no reason to go over the same ground except to note that Deitz's list of six cosmic principles may well be supplemented by the seventh principle of *concordia discors*. Patrizi formulates this principle in the following words:

> The powers, I say, of sustaining the whole body, giving it life, unifying it in itself, making it one, and bringing sympathy and harmony to its powers diffused through its parts and in its whole at the same time, and diffusing the body's parts, individual powers, and particular natures, which natures, as if belonging to a universal and single servant-nature, move particular bodies, change, and cause them to come to be, grow, die, and return all of them to the power of their Queen and bring them together into a single concord, such that from so many parts of the world, they are joined into one with sympathy and harmony as if the one harmony is derived from its first Unity through those steps which we have mentioned.[195]

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all nature, as we shall later see, is the descendant of the Soul just as the Soul is the descendant of the Intellect and this Intellect is the descendant of the Maker. From which these descendants taking orders have worked since the beginning, are working at present, and will work in the future, and by this golden chain all things are connected right down to Earth and the centre of the universe such that nothing is to be feared from [through] this circular motion such as either its parts will be destroyed or it will be stopped from being moved by its own weight.) *NUP*4, XVII, 104[r].

194 *Et ens ergo est, et non ens est, et a se sit dissimile. Si igitur corpus, cum hisce omnibus proprietatibus in universitate reperiatur, necesse est in eadem universitate, contrarium ens, cum contrariis omnibus proprietatibus reperiri. Contrario namque uno in rebus posito, poni necesse est et alterum*. (So it is both an entity and a non-entity and it would be unlike itself. If, then, a body with all these properties were to be found in the universe, it would be necessary in the same universe for an opposite entity to be found with all the opposite properties. After all, when one opposite is set up in things, it is necessary to suppose the opposite.) *NUP*3, II, 51[r].

195 *Vires inquam corpus totum, sustinendi, vivificandi, in se uniendi, unum faciendi, viribusque suis in partes, et totum simul diffusis, sympathiam, et harmoniam efficiendi: et partes eius vires singulas, et particulares naturas diffundendi, quae tamquam universalis uniusque naturae ministrae, corpora particularia, moveant, alterent, generent, augeant, corrumpant, et in imperium Reginae suae omnia referant, et in unam concordiam conferant, ita ut ex totius mundi partibus, una confletur, et sympathia, et harmonia, sicuti, et ipsa una est, ab unitate sua prima per eos gradus quos diximus derivata.* *NUP*2, XII, 27[v]. Translation Brickman (1941).

Thus, Ficino and Patrizi share the very same set of seven metaphysical principles underpinning their mathematical conceptions of world harmony. Just like Ficino, in his philosophy of nature Patrizi is forced to depart from these principles, because he firmly believes that nature does not do anything unreasonable. Since it always acts in an orderly manner, never leaping and always acting to some good end, the world must be created in an entirely rational and harmonically ordered way:

> For nature too seems to carry out all its works by entirely right reason—hence, all those 'axioms' of Aristotle, namely, God and nature do nothing in vain, that is, nothing without right reason. Nature always acts to some end. Of the things that are done by nature, nothing is out of order. Nature always aims for and achieves the best. Nature does nothing by chance. Nature always desires the better. Nature does nothing at random.[196]

It is quite ironic that Patrizi, one of the most fanatical opponents of Aristotle, uses here a quotation from the *Theologia* (*Theology of Aristotle*), which he believed was an original work by Aristotle himself, to justify his belief in the existence of a World-Soul.[197]

Patrizi supports the belief in a World-Soul by arguing that the cause of planetary motion cannot be ascribed to other bodies, since that would involve an infinite regress. Nor can it be the interaction of bodies, that is, where the principle of their motion is internal to them. Therefore, Patrizi declares untenable the Aristotelian idea that the movement of heavenly bodies is caused by the sphere of the 'primum mobile' transferring its motion to the sphere of Saturn, which in turn moves the sphere of Jupiter, and so on:

> For neither will a Peripatetic allow that the first of them—that is, the Intellect, which is the Mover of the first heaven—comes down to move

196 *Nam et natura, recta admodum ratione opera sua cuncta peragere videtur. Unde illa tot Aristotelica fere axiomata. Deus, et natura nihil frustra faciunt, hoc est nihil sine recta ratione. Natura semper ad aliquem finem agit. Eorum quae a natura fiunt, nihil est inordinatum. Natura semper intendit, et facit optimum. Natura nihil facit casu. Natura semper melius desiderat. Natura nihil agit temere.* NUP3, v, 59r. Translation Brickman (1941).

197 See Kraye 1986, 265–286. Patrizi classified the (Pseudo-)Aristotelian writings *Theologia* (*Theology of Aristotle*) and Problemata (*Problems*) as Aristotle's mystic philosophy or theology. Patrizi included the spurious *Theology of Aristotle*, which in fact derived largely from the Neoplatonist Plotinus, as an appendix to his *Nova philosophia* to demonstrate that Aristotle agreed with many of the Platonic doctrines and to demonstrate that his own new philosophy of world harmony was fully in line with that of the *prisci theologi*.

> the sphere of Saturn, nor that the unnamed substance, the mover of it, comes down to Jupiter or even lower. Nor will the Peripatetic grant that the mover of the Moon will climb to Venus or the Sun. But all stay still and motionless in their places.[198]

With this argument, at the same time Patrizi disposes of Aristotle's rejection of a sonorous universe in favour of silent, frictionless spheres.[199] In his demonstration of the falsity of the Aristotelian belief that the smooth operation of the planetary spheres is caused by the highest sphere, Patrizi, in imitation of Ficino, tries to prove that the cause of the motion of heavenly bodies is incorporeal being. Patrizi argues that direct interaction between corporeal and incorporeal being is impossible, because it involves contact and commingling, which are impossible between the incorporeal and the corporeal.[200] Furthermore, incorporeals are active in power, while corporeals have merely a potency to experience action.[201]

As observed by Brickman (1941, 41), this argumentation ends in the paradox that though corporeals exist by virtue of incorporeals, the preservation of the former cannot be ascribed directly to any of the latter. In order to solve this paradox, Patrizi borrows from Ficino his concept of Soul as cosmic bond and harmonizing mean.[202] Soul is defined as belonging to the metaphysical category of corporeals-incorporeals, that is, incorporeal entities having certain corporeal characteristics. Thus, following Ficino, Patrizi is still able to defend the thesis that the planetary revolutions can be explained adequately only in the metaphysical terms of a World-Soul. Hence, also for Patrizi the world remains

198 *Nam neque Peripatus permittet, Primum illum suum, primi coeli motorem intellectum ad Saturni spheram movendam descendere. Neque huius motricem, anonymam illam, substantiam, ad Iovem aut etiam inferius se se demittere. Nequae Lunae motricem concedat ad Venerem, aut Solem scandere. Sed suis quaeque locis immotae, stabilesque permanent.* *NUP*3, I, 49^{v}. Translation Brickman (1941).

199 Aristotle, *De caelo* II.9.

200 Brickman 1941, 41.

201 This theory is doubtless inspired by Ficino. For Ficino's account of Soul as a third essence (i.e., a mixture of the incorporeal and the corporeal), see *CiT* XXVIIII–XXXVIII and *TP* III.2.2.-4, in Ficino 2001–2006, 3 (2003): 232–241. In *TP* III.2.2., which was studied by Patrizi, Ficino defines Soul as follows: "But the third essence [i.e., Soul] set between them is such that it cleaves to the higher while not abandoning the lower; and in it, therefore, the higher and lower are linked together."

202 *NUP*3, I, 49^{v}.

a real being which can be characterized as one, alive, understanding, rational, and therefore harmonious.[203]

Like Ficino, Patrizi defines the World-Soul as the third essence in the hierarchy of being.[204] Again, he follows his predecessor in arguing that Soul makes contact with the body through its undivided power, and not through its quantitative extension.[205] Given the seven cosmic principles discussed above, Soul becomes present in the individual parts of the world as an undivided whole. Like Ficino, Patrizi distinguishes between two categories of Souls: 'supramundane' Souls are separable in existence, pure and unmixed, since no bodies can exist in the intelligible realm, while 'intramundane' Souls are inseparable in existence, since in the sensible realm they are always united with bodies.[206] With this twofold Neoplatonic notion of Soul, Patrizi challenges the Aristotelian view that Soul can only be the activity of a natural organic body having the power to live. As an alternative to Aristotle's account of the motion of the heavenly bodies, Patrizi offers the following Platonic explanation of the ultimate constituents of Soul corresponding with *Tim.* 35a:[207]

> They [i.e., the Platonists] said that all things consist of [mixtures of] the five elements, from which the [World-]Soul is composed. And [these elements are], of course, Essence, Sameness, Otherness, Rest, and Motion. When these are variously combined, they say that different kinds of Souls are formed.[208]

But in a comparison with Ficino's interpretation of the Delta of Crantor, a significant difference stands out.[209] Whereas Ficino in his explanation of cosmic order tried very hard to align the harmonic ratios of the World-Soul with the notions of 'Essence', 'Infinity', 'Finity', 'Sameness', 'Otherness', 'Motion', and 'Rest', Patrizi makes no effort at all to make sense of the harmonic relationships of the different constituents of the World-Soul.

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203 *NUP*3, II, 51^{r}.

204 *NUP*3, III, 53^{r}. See "It also follows from this that the third essence is simultaneously both divided and undivided"; *TP*, III.2.5, in Ficino 2001–2006, 1 (2001): 240–241.

205 *NUP*3, III, 53^{r}. See *TP* III.2.4., in Ficino 2001–2006, 1 (2001): 236–241.

206 Brickman 1941, 41. For Ficino's ideas about the different inhabitants of the cosmos, see 2.5.3 and table 2.1.

207 *NUP*3, III, 53^{v}.

208 *Dixerunt ex quinque rerum omnium elementis, omnia, et inter haec animum constitui. Nimirum, Essentia, Eodem, Altero, Statu, Motu. Hisce varie complicatis, varia animorum genera formari asserverunt.* *NUP*3, III, 53^{v}.

209 For Ficino's interpretation of the Delta of Crantor, see 2.5.1.

Despite the fact that Patrizi's interpretation of the concept of World-Soul differs fundamentally from Ficino's in its almost complete lack of Pythagorean proportions, Patrizi concludes the "Pampsychia" with a restatement of Ficino's doctrine of the World-Soul as cosmic bond:

> The body of the world, then, so that it can be and continue to be the body of the world, needs a Soul to be joined to it. But the Soul by its very existence and presence does three things. It animates, gives life, and moves. For if it were not present in the body, it would not be capable of animating it. If it were not animating it, it would not provide it with life. If it were not making it alive, it would not move it either. If it were not moving, it would not unite its parts. If it were not uniting them, it would not be binding them together either. If it were not binding, their bond would not exist either. If their bond were not to exist, the parts of the world would not have sympathy between them. If they were not to have sympathy, they would not be affected by each other. If they were to be unaffected, they would not even be acting on each other. If they were not acting, no part of the world would be coming into being or passing away.[210]

Patrizi needs the concept of Soul as cause of the oneness, interconnectedness and movement of the different parts of the world. Harmonizing cosmic powers explaining the interaction between the different parts of the cosmos are also necessary, because he lacks the theoretical tools to conceptualize cosmic motion and dynamic interplay otherwise, as I will discuss now.

4.4.2 *Harmonizing Powers Explaining Cosmic Motion and Dynamic Interplay*

The four cosmic powers that explain cosmic order in terms of their dynamic interplay are of great importance in Patrizi's philosophy.[211] Like Ficino, Patrizi

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210 *Mundi ergo corpus, ut mundi corpus esse, et esse perseveraret, animo opus habuit, qui ei iungeretur. Animus autem ipso sui esse, suaque praesentia, tria efficit. Animat, vivificat, movet. Nisi enim adesset corpori, ipsum non animaret. Si non animaret; vitam ei non praeberet. Si vivum ipsum non redderet, neutiquam moveret. Si non moveret, partes eius non uniret. Si non uniret, neque eas insimul vinciret, si non vinciret, neque vinculum earum esset. Si vinculum earum non esset, Sympathiam inter se, mundi partes non haberent. Si Sympathiam non haberent, inter se invicem non patirentur. Si non patirentur, neque etiam in se se invicem agerent. Si non agerent, nulla mundi pars generaretur, nulla corrumperetur.* NUP3, IV, 56^{v}. Translation Brickman (1941).

211 For Ficino's four cosmic harmonizing powers, see 2.5.2. Patrizi's critique of Ficino's view of sympathetic vibration is discussed at 4.2.2.

is convinced that the whole Creation is permeated by an inherent desire for the ultimate Good and that cosmic powers determine sympathetic and antipathetic relationships between its parts:

> The first [cosmic] order greatly furthers this desire of all entities to strive for the greatest Good.[212]

Furthermore, Patrizi still firmly believes that all the planets, like the Moon, exert influence on life on Earth and that the planets are animated. Yet, as discussed above at 4.2.2, in contrast with Ficino, he no longer believes that they are moved or animated by a kind of personal soul nor that they take on the attributes of the Olympian gods after whom they are named.

In addition to the concept of a World-Soul, Patrizi also uses the concept of a World-Spirit to explain a variety of natural phenomena such as force, motion, and the interconnection of all the parts of the world. He borrows conceptions of 'spirit', like that used by Ficino, as an intermediary between form and matter and of 'motion' as a kind of spirit through which form coalesces with matter. Patrizi's concept of 'spirit', moreover, is also based on the Christian view of the Holy Spirit. As argued by Kristeller (1964, 125–126), the way in which Patrizi tries to harmonize Neoplatonist, Christian, and natural philosophical conceptions of spirit is typical for a transitional thinker between the ancient and modern world.

According to Patrizi, during Creation, God the Father generated a third principle in addition to the second principle of his Son: the second Intellect, or Spirit.[213] Brickman (1941, 35) explains that the second Intellect does not create anything in itself, because everything has been perfectly conveyed to it from the Father and the Son. It can only create outside itself, around and below itself. The second Intellect is surrounded only by Intellects, and therefore in the hierarchy of being it creates beneath itself on the levels of Soul, Nature, Quality, Form, and Bodies.[214] Spirit, therefore, as Dadić (2000, 149) demonstrates, is active in the corporeal world, and Patrizi explains many natural phenomena by it. He often mentions Spirit together with Mind, Intellect, Soul, or Nature, which all partake in the functioning of the world.

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212 *Hunc entium omnium appetitum, et ad summum bonum nixum, ordo primus maxime adiuvat.* *NUP*2, XVII, 37^{r}.

213 *NUP*2, XII, 23^{v}. For Patrizi's conception of the chain of being, see cosmic principle 5 ("Nature makes no leaps; in other words, the progression of being is continuous"), discussed at 4.4.1.

214 *NUP*2, XII, 40^{r}.

Alongside the seven metaphysical principles explaining nature in terms of an underlying intelligible archetypal order, which will be discussed below at 4.4.1, Patrizi's "Pancosmia" introduces four basic principles to account for the structure and operations of the physical world.[215] They are, in fact, the basic constituents of nature, which are defined as principles:

1. space (*spatium*)
2. light (*lux* and *lumen*)
3. heat (*calor*)
4. fluidity (*fluor*)

In accordance with *Tim.* 52a–b and Proclus's and Ficino's commentary on this passage, Patrizi holds that space is one of the first principles of the world, because it has the following four properties: it is that which is before all things, in which, from which, and after which all things exist. As discussed above at 4.4.1, it is an all-embracing term implying the cause, order, and efficacy of the intelligible and sensible realms.[216]

In contrast with Ficino, however, Patrizi takes a naturalistic approach to geometry when he considers the basic elements of the world, which he defines as principles. He, moreover, holds that the four elements are further reducible to his own four elemental principles. In so doing, Patrizi deals with physical principles in terms of the structure and operations of the natural world. Therefore, he deals with light and heat not only as material causes but also as efficient causes. The introduction of these efficient causes starts a gradual process of replacement of the four cosmic harmonizing powers, which had such an important explanatory function in Ficino's theory of world harmony (see 2.3.2).

As Brickman (1941, 47), Kristeller (1964, 122–124), and others have all explained at length, Patrizi argues that the world consists (1) of a finite space, which is located in the centre (i.e., the position occupied by the corporeal world), and of an infinite external space, which is empty and surrounds finite space on all sides. In contrast to Ficino's view, this infinite, extracosmic space is not a metaphysical realm but a three-dimensional entity belonging to the actual cosmos. Space, for Patrizi, is prior to all bodies, even to light, and as at *Tim.* 48e–49a it is conceived of as an empty receptacle. According to Patrizi, (2) light is the first entity created after space. Because of its incorporeality, Neoplatonists like Ficino saw light first of all as a non-dimensional metaphysical

215 See Brickman 1941, 44–53, esp. 51; and Kristeller 1964, 122–124.

216 Deitz 1999, 146.

entity, but Patrizi's cosmology transforms it into an infinite, three-dimensional entity. (3) Heat, subsequently, is considered to be derived from light and is treated as a formal and active principle, whereas (4) fluidity is considered to be a passive and material principle. But whereas Ficino dealt with heat in the context of his light metaphysics, in the context of his "Pancosmia" Patrizi is above all interested in its physical function in the generation of the four elements.[217] In contrast with heat, fluidity is capable of different degrees of density, and this accounts for the resistance that characterizes physical bodies as distinct from pure geometrical forms. In contrast with Ficino, Patrizi emphasizes not so much the structural as the functional reduction of the four elements in his explanation of cosmic mathematical order.

In the account of geometry in Patrizi's "Pancosmia", world harmony is increasingly explained in terms of the dynamic laws of physical nature rather than in terms of an eternal metaphysical static model. Patrizi's elements are not simple bodies but universal principles which provide the foundation for all specific existence in the world, and not only of nature in the elemental region but of the celestial and empyrean regions as well. This is a continuation of Ficino's account of geometry, discussed at 2.4.3, in which the four elements were conceived of as separate spheres in the centre of the cosmos, which experienced the same harmonic cosmic laws as all other spheres in the system.[218]

Discussing the dynamic interplay of the four basic constituents of nature, Patrizi argues that brightness (*lumen*) and heat (*calor*) emanate from God.[219] He then connects heat and Spirit and associates them with the biblical Spirit of God moving upon the face of the waters at Genesis 1:1–2. As for heat, which derives from God's fire, he notes that heat might be Hermes Trismegistus's god of fire and Spirit, and also the Spirit moving, according to Moses, upon the waters (*fluor*) and shaping them into various things.[220] In this, Jammer (1957, 76) notes, presumably Patrizi was inspired by Bernardino Telesio, who also used Spirit as a concept of force 'avant la lettre' in his natural philosophy. Telesio used the concepts of heat and cold in combination with Spirit, which

217 Ficino defined light as an intermediary being, that is, as a corporeal entity with some incorporeal characteristics, at *CiT* X, 61^{v}. See for this topic 2.5.3. For Patrizi's light metaphysics, see Puliafito 1987a; and Ryan 2002.

218 Patrizi deals extensively with the four elements in the "Pancosmia". See *NUP*4, XXII–XXXII, 117^{v}–153^{v}. For the traditional representation of the elemental spheres as being the centre of the harmonic cosmos, see figure 2.10 at 2.5.2.

219 *NUP*4, V, 77^{r}.

220 *NUP*4, V, 77^{r}.

he defined as a specific agent in nature. He then identified Spirit with a kind of heat.[221]

To conclude this discussion, Patrizi states that the Spirit of God plays a part throughout the infinite world: it fills not only the terrestrial sphere but also the spheres of water and air, as well as the celestial spheres and the sphere of the empyrean world.[222] Cognation, harmony, and sympathy in the world are caused by incorporeal innate life forces such as Spirit.[223] Therefore, it is not enough for the stars to have Soul, Intellect, and Nature, from which their motion derives, but they must also possess Spirit, which partakes in the Creation of reciprocal relations in the world. In addition, Spirit belongs not only to the stars but also to Earth, which also possesses a Mind and a Soul. This is why the four elements of earth, water, air, and fire interact with each other.[224] And this is also why the harmony of different parts of the world, be they stars or elements, originates not only from Soul but also from Spirit.

In this explanation of the power of cosmic sympathy, Patrizi accords greater significance to the theory of motion and rest at *Tim.* 57d–58c than Ficino did. In this passage Plato explained why the four primary bodies of earth, water, air, and fire are not sorted out by the attraction of like to like into four separate homogeneous masses. If that were to happen, then they would settle down into a permanent state of rest, since attraction is the only power active in the chaos described earlier in the *Timaeus*, and when it had completed its work, nothing more could happen. The answer given by Plato is not that the world is animated by a self-moving Soul, which can and must constantly keep in motion. Rather, in the second part of this discourse in the *Timaeus*, Plato supplies, as far as possible, mechanistic explanations for cosmic powers. The mover in this context is of that lower order which is itself moved and transmits motion to other things. In Patrizi's interpretation of this passage, moreover, the concepts of Spirit and sympathy play an essential role.

Following *Tim.* 57d–58c, Patrizi explains in the "Pampsychia" that a body need not be moved directly by Soul, that is, by the force of the World-Soul.[225] Soul, in which forces and actions are distributed, can produce motion indirectly through Nature, which is just below Soul in the hierarchy of being. Nature is generated by Soul and it therefore partakes of Soul. Nature is weaker

221 For the relationship between Patrizi and Telesio, see, e.g., Fiorentino 1872, 358–414; Garin 2008, 1: 427ff.; and Schuhmann 1988.

222 *NUP*4, V, 77^{r}. See Grant 1987, 159–160.

223 *NUP*4, XXI, 117^{r}.

224 *NUP*4, XXIII, 123^{r}.

225 *NUP*3, II, 51^{r}.

than Soul because it is the effect of the cause, that is, Soul. Therefore, Nature can also produce motion. It is also an intermediary being between Soul and Body (the latter is the lowest in the hierarchy of beings). All bodies seem to move by themselves, and it is said that they move according to their Nature. Thus, the heavens only apparently move by themselves. They actually move according to their Nature and may be said to be moved directly by Nature or, even better, by Soul through Nature.[226] Soul is the cause of motion and of the fact that the parts of the world hold together. Thus, the world body is divisible; that is, it consists of separable and dispersible parts held together by Soul. Soul was created in order to unite the parts of the world in addition to animating and moving them. The power uniting the parts of the world is cosmic sympathetic vibration.[227]

The two contrasting explanations of natural phenomena discussed above (an animating Soul providing the cosmos with harmonic order versus a kind of inherent Spirit, or natural power, determining the dynamic interplay of the four basic constituents of nature) are both used in Patrizi's explanation of the tides.[228] Therefore, this phenomenon will be examined here as an example of Patrizi's transitional view on the use of cosmic harmonizing principles and powers for the explanation of natural phenomena.[229]

In his explanation of the tides, Patrizi relies on Poseidonius, and perhaps also on Aristides Quintilianus, both of whom constructed an elaborate set of universal harmonic analogies that touch less directly on music as ordered sound.[230] As Dadić's (2000, 149) discussion of Patrizi's concept of the tides omits an explanation in terms of cosmic harmony, I will supply one here. Patrizi argues that the fact that the duration of this cyclic motion of water occupies precisely twenty-eight days affords observational proof that the tides must be governed by the principles of harmonics, or musical mathematics. Hence, the regularity

226 *NUP*1, I, 1^{v}.

227 *NUP*3, IV, 56^{v}.

228 *NUP*4, XXVIII, 137^{v}ff.

229 Building on and further developing Dadić's theory, the interpretation given here is an alternative to the interpretation of Petković and Hengster-Movrić (2006, 255–266), who associated Patrizi's view with a modern relativistic interpretation of the tides.

230 As stated at *NUP*4, VII, 136^{v}, Patrizi's source for this theory is Poseidonius (135–51 BCE), and perhaps he also consulted Aristides Quintilianus (third century CE). Both scholars listed many analogies between earthly and heavenly things, among them the flow of rivers and the tides of the sea. For Poseidonius's theory of the tides, see Reinhardt 1926, 49, 54, 58–59, 112, 114. For Quintilianus's interpretation, see Aristides Quintilianus, *De Musica* III.1.5 (in Aristides Quintilianus 1937, 321–324; and Haar 1961, 152–157). For Patrizi's interpretation of the tides, see Dadić 2000, 148–155.

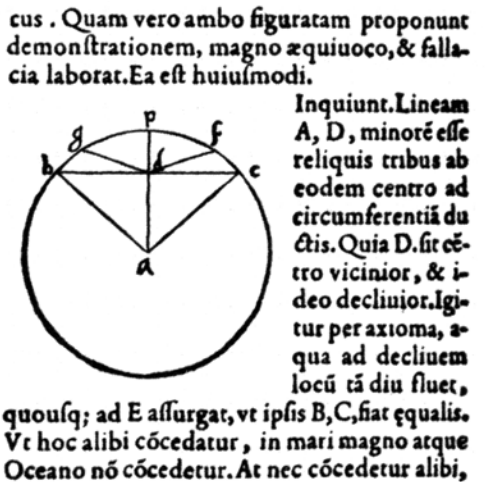
cus . Quam vero ambo figuratam proponunt
demonſtrationem, magno æquiuoco,& fallacia laborat.Ea eſt huiuſmodi.
Inquiunt.Lineam A, D, minoré eſſe reliquis tribus ab eodem centro ad circumferentiã ductis.Quia D.ſit cẽtro vicinior, & ideo decliuior.Igitur per axioma, aqua ad decliuem locũ tã diu fluet, quouſq; ad E aſſurgat,vt ipſis B,C,fiat ęqualis. Vt hoc alibi cõcedatur, in mari magno atque Oceano nõ cõcedetur.At nec cõcedetur alibi,
p
g
f
b
d
c
a

FIGURE 4.6 *A geometric diagram representing the tides. From Francesco, Patrizi*, Nova philosophia *4, XXV, 129ᵛ.*

of the motions of the ocean's waters—represented schematically by the letters *a* to *g* in figure 4.6 –is a clear expression of divine order.

As new theories about physical nature are not yet sufficiently capable of conceptualizing the harmonic rhythm of the sea, Patrizi reverts to traditional cosmology to explain the pattern of motions of water on Earth, resorting to the very traditional music theory which he dismissed from his philosophy of the universe. Hence, to grasp the intelligible pattern of the tides, the doctrine of cosmic harmony still provides the best conceptual framework. Despite the use of a modern diagram of the geometrical structure of the motion of the tides of the ocean, Patrizi still describes the powers causing them in the proportional relationships of the octave (2:1), fifth (3:2), and fourth (4:3):[231]

> Orderly changes keep occurring to water in such a way that these movements of the sea [i.e., ebb and flood] amount to a certain very great harmony. For eight days are given to fullness, six to waning, six more to rest, and eight to waxing [4:3:3:4]. And this strong power must be harmonic; that is, it must be reducible to the harmonic ratios of the fourth [4:3], fifth [3:2], and octave [2:1] reproduced and distributed over the weeks.[232]

231 *NUP*4, XXV, 129ᵛ.

232 *Aqua, eaedem ordine recurrunt vices, ita ut hi maris motus, summa quadam constent harmonia. Nam summae plenitudini bis quater dantur dies, decremento bis tres, quieti itidem bis tres, incremento bis quatuor. Quae sane vis harmonicus possit, ad harmoniarum redu-*

According to Patrizi, along with the Moon, the Sun also plays a part in causing the tides.[233] There would be no rise or fall of the sea without the motion of the Moon and its interaction with the Sun, in variable positions relative to each other as well as in relation to Earth and the ocean. Since brightness coming from the Sun and the Moon by way of Spirit causes waters to rise, that rise will depend on the degree of the Moon's illumination. Light in the Sun and the Moon can influence the tides on Earth, because the ethereal elements of earth and water that compose the Moon exert the power of attraction and repulsion on the terrestrial elements earth and water that compose Earth. In terms of the doctrine of the harmony of the spheres, one could say that the Sun and the Moon are sometimes in a position with regard to Earth in which they attract the waters of a sea, which is an expression of harmony and sympathy. Sometimes, their position with regard to Earth makes them repulse the waters of the sea, which is an expression of temporary absence of harmony and sympathy. Yet the cycle of the tides as a whole provides a perfect example of the cosmic power of the seventh cosmic principle of *concordia discors*.

Still, Patrizi seems not to be entirely satisfied with harmonizing powers as an explanation. A reduction in terms of harmonic proportions and powers cannot count as a sufficient explanation for the phenomenon of the tides. Hence, he also tries to formulate an explanation using inherent natural powers and qualities causing the tides.[234] He asserts at the start that according to the general laws of world harmony, the Moon should affect all waters, yet all the waters do not rise to the same extent. Patrizi attributes this discrepancy to their different constitution: some waters are salty, others fresh; some are denser, others less dense; some are warmer, others less warm. Together with the Sun and the Moon, these differences must also play a role as inherent causes of the tides. Like the stars, the waters on Earth move by their Spirit and their Nature, both of which exemplify the harmonic structure of the World-Soul. All the different waters move in different ways, because each body of water possesses its own spiritual essence, which remains the ultimate source of its power and motion.

Patrizi clearly believes that precise attention should be paid to how the cosmic bond that causes power and motion manifests itself in different natural phenomena. As Dadić (2000, 149ff.) notes, he tries to explain this bond in terms of World-Spirit, which he interprets as a kind of inherent natural power

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cere rationes diatessaron, diapente, et diapason replicatas, et per hebdomadas distributas. *NUP*4, XXVII, 136^{v}.

233 *NUP*4, XXVIII, 142^{r}.

234 *NUP*4, VII, 142^{r}–142^{v}.

causing cosmic sympathy.[235] In this context, he argues that the Moon consists of ethereal earth and water, which qua Spirit are similar to terrestrial earth and water. This similarity in Spirit manifests itself in cognation and sympathy. The mover of the tides belongs to that lower order of Spirit which is itself moved by the World-Soul and which is able to transmit motion to other things. The Spirit of the ethereal water causes action in all terrestrial liquids. All liquids are subordinated to the Moon, which has supreme power over them. However, all the liquids on Earth are not susceptible to the Moon to the same extent.

Elsewhere, as noted by Dadić (2000, 151ff), with regard to the motions of the sea, Patrizi establishes a somewhat different relation between Spirit and heat as he attempts to explain the cause of the motion of water in straits.[236] Since a large quantity of seawater moves at either end of the strait, he argues, it must contain a considerable quantity of heat. Heat and Spirit are interrelated. Warm sea generates Spirits in itself. The sea raises itself at either end of the strait by the action of Spirit and penetrates into the strait at either end.[237] On the one hand, Spirit operates through heat to raise the sea level, and on the other, he argues, if combined with heat, Spirit can multiply itself. Later in this discussion Patrizi explains that high tide occurs when the sea dilutes, and the dilution occurs when the sea obtains new heat from the Sun by day and from the Moon by night. This heat is the means by which the World-Soul and Spirit achieve the rising of the sea. He concludes this discussion with a reference to the metaphysical harmonic order of the World-Soul, the ultimate cause for the rhythmical timetable of the tides.[238]

To recapitulate, this case study of different explanations for the tides suggests that despite his dismissal of Pythagorean proportions, world harmony and sympathetic vibration are still important concepts in Patrizi's explanation of natural phenomena. To a greater extent than Ficino, Patrizi uses the concept of sympathy, which is an expression of the law of universal attraction in the world, as a kind of forerunner of the modern concept of force.[239]

According to Patrizi, sympathy is contained in Essence and, together with Essence, in Soul. Ultimately, it generates action just like any force. Sympathy, then, must be considered to be a cosmic power acting among all parts of the world. Like his predecessors and many contemporaries, Patrizi still tries to explain natural phenomena as motion, force, and the interconnection of all

235 *NUP*4, VII, 143^{r}. For Ficino's theory of World-Spirit, see 2.5.2.

236 *NUP*4, VII, 134^{v}–137^{r}.

237 *NUP*4, XXVII, 135^{r}.

238 *NUP*4, XXIX, 144^{r}.

239 *NUP*4, XXIX, 142^{r}.

the parts of the world in semi-metaphysical terms, simply because this was still the most rational and consistent explanation of them.[240] Thus, with his various attempts to conceptualize the phenomenon of the tides, Patrizi built on and further developed Ficino's metaphysical ideas of harmonizing powers in the cosmos.

As Jammer (1957, 81ff.) observes, a decisive step in the reinterpretation of the concept of cosmic sympathetic vibration was made by Johannes Kepler. Kepler, still under the influence of Neoplatonic ideas of philosophers such as Ficino and Patrizi, maintained that Soul animates the celestial bodies and controls their motion.[241] Yet however close Kepler came to a mechanistic understanding of the concept of force, he was still dependent on the term sympathy. Only in his *Astronomia nova* (*New Astronomy*; 1609) did Kepler finally abandon such a concept of force in favour of the mechanistic interpretation, disregarding its metaphysical meaning.

4.4.3 *A Debate with a Member of the Index of Forbidden Books on the Harmonic Design of God's Creation*

Historically, freedom of thought and written expression is a relatively recent development. For sixteenth-century church leaders and scholars, however, the idea that anyone could think and say or write whatever he wanted was dangerous, because it might lead others into error, with potential damaging consequences for the afterlife. With the Council of Trent (1545–1563), the church created a permanent institution to deal with this threat. The Sacred Congregation of the Index of Forbidden Books was initially charged with drawing up a complete list of forbidden books.[242] The first general version of this list, or 'index', was published in 1559. This was immediately revised by a papal commission, which published its new list in 1564, the Tridentine Index. This index also provided rules for censorship.

One of the members of the commission entrusted with the task of protecting the official doctrine of the church against cosmological heresies was Jacopo de Lugo, who declared that to say that an opinion is 'heretical' is to say that it is contradictory to the infallible testimony of the Catholic

240 *NUP*4, XXIX, 142[r].

241 For the different stages in the prehistory of ideas of cosmic powers and forces, see Jammer 1957, 81–146.

242 For a modern edition of the documents from the Archives of the Roman Congregation, which records the relationship between the Catholic Church and modern science during the sixteenth century, see Spruit and Baldini 2009.

Church.[243] Accordingly, because Catholic faith was assumed to be fully compatible with the Bible, an opinion could be properly called 'heresy' simply because it varies from the Holy Scriptures.[244] Since Patrizi was well aware of the risk of publishing his *Nova philosophia*, before publication he offered the manuscript for official approval to the inquisitor of Ferrara.[245] De Lugo was appointed to examine whether Patrizi's book was incompatible with biblical doctrine, and presumably, he also informed Patrizi about the work's dubious passages. Whatever the precise nature of the contact, traces of the debate with Jacopo de Lugo ended up in the form of annotations in Patrizi's *Nova philosophia*.

One of the major subjects for debate is Patrizi's idea that the world was created by God from pre-existing space, which is linked with his theory of the infinity of the universe. In order to save the belief in the harmonic perfection of God's Creation, he tries to conceptualize the world as a finite, perfect, harmonic cosmos floating in empty infinite space:

> In entering by another way, we say that the space outside the world is both finite and infinite. It is finite on the side where it touches the outermost surface of the world—finite not with respect to its own natural limit but with respect to the boundary of the world. But where it recedes from the world and moves away from it, it passes over into the infinite.[246]

Based on cosmic principle 6 ("Whenever one of a pair of logical contraries is said to exist, its opposite must exist as well"), Patrizi argues that being can be

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243 Stausberg 1998, 344. Jacopo de Lugo's criticism of the doctrine that Earth moves is discussed in Roberts 1885, 10–11, 38.

244 Roberts 1885, 10.

245 The story of Patrizi's condemnation has been repeatedly told and analysed in detail. Yet Patrizi's reception of the doctrine of the harmony of the spheres has never been studied from this perspective before. For a full survey of earlier literature, see Puliafito 1993, xix–xxvi; and for the edited text of the objections raised against the *NUP* by the Sacred Congregation of the Index of Forbidden Books, see Puliafito 1993, xxx–xxxviii. The following literature on the subject is given in the *Index des Livres Interdits* IX (see Martínez 1994, "Index de Rome" 1596, no. 340, 549–50): Firpo 1950–1951; Gregory 1953, 1955; Patrizi 1970; and E. Turolla, in DCLI, III, 388–392. The first *Index Librorum Prohibitorum* to not mention the *NUP* was published in 1900. For Patrizi's relationship with the Sacred Congregation of the Index of Forbidden Books, see also Rotondò 1982, 14–50.

246 *Nos alia ingredientes via, dicimus, spacium quod est extra mundum, et finitum esse, et infinitum. Finitum quidem ea parte, qua mundi extimam superficiem contingit. non quidem proprio, et naturali fine suo, sed mundi terminis. Qua vero digreditur a mundo, ab eoque procul abit, in infinitum transit.* NUP4, I, 64r.

subdivided into finite and infinite being. He also tries to answer the question of whether infinite being is only part of the metaphysical, intelligible realm or also of the physical, sensible realm, affirming the second possibility. This is in contrast with Ficino, who had argued that the physical world must be finite and spherical, because otherwise its perfection and natural harmony would not make sense.[247]

To defend the infinity of space, Patrizi concentrates on the arguments advanced by Aristotle against the Pythagorean conception of infinity. The Pythagoreans saw infinity as an independent principle in nature. Aristotle countered by noting that if we assume that the infinite is actually divided, then every part of infinity would be infinite too, because every part of a substance bears the characteristics which pertain to the whole. This would mean that the infinite consists of an infinite number of infinite parts, which is impossible.[248] Patrizi argues, however, that the infinite has only finite parts; thus, to his mind, Aristotle draws the wrong conclusions from the fact that the infinite can potentially be divided into an infinite number of constituent parts.

In Patrizi's ambiguous definition of the infinity of space, traces can be found of the intermingling of the corporeal and the incorporeal originating from both Presocratic and Neoplatonic philosophy.[249] In his definition of the universe, a finite harmonic universe is situated in something infinite called space. In addition, in contrast with the Christian dogma that God created the world *ex nihilo*, Patrizi argues that the world was created by God from pre-existing space:[250]

> Space antedates the world, and of course it is the first of all things in the world. . . . Before this world that we inhabit was made by God, there was an empty space, in which either atoms floated hither and yon, chaos was rolled around, or unformed matter was rolled about in irregular movements. Therefore, space was there before the formation of the world.[251]

In this passage the chaos before Creation is associated with space. Thus, to Patrizi's mind, the continuous quantity of space, rather than the discrete quantity of harmonic proportions, served as archetype in the Mind of the Creator.

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247 See *CiT* IIII, 59^{v}.

248 Aristotle, *Physics* III.5.204a., 21ff.

249 See Deitz 1999, 146–151. The analysis of Patrizi's concepts of infinity and World-Soul that are presented here, again, further develops Brickman's (1941).

250 For Ficino's interpretation of a Creation *ex nihilo*, see 2.3.3.

251 *Spacium autem ante quam mundus est: spacium nimirum, mundanorum omnium primum erit. . . . Ante quam hic quem incolimus mundus a Deo esset fabrefactus inane erat, in quo vel atomi volitabant, vel chaos volutabatur, vel materia informis, motibus inordinatis voluebatur: spacium ergo ibi erat ante mundi formationem.* NUP4, I, 65^{r}. Translation Brickman (1941).

Consequently, Pythagorean numbers give way to space as the ultimate constituent of reality. Even though Patrizi still firmly believes that the universe is created and ordered by God, he maintains that this order can be better expressed in geometrical terms than in arithmetical ones. In his mind the concepts of World-Soul and space can be upheld in one theory of the universe and reconcile with official church doctrine as regards the Creation story, but in fact, their combination makes the foundation of his philosophy inconsistent.

In order to avert accusations of heresy by the Catholic Church, in his *Nova philosophia* Patrizi incorporates an annotation by Jacopo de Lugo, who counters his representation of the universe as infinite space with the traditional vision of the world as a finite harmonic Creation. De Lugo argues for the Christian-Neoplatonic belief in numbers as the ultimate constituents of reality and consequently for a finite world ordered according to number:

> And from the Holy Scriptures we learn the opposite, for from what is said in Wisdom [11:20]—namely, that God the Creator of Heaven and Earth ordained everything according to number, weight, and measure—we learn that all things exist subject to a certain number, a determined weight, and a limited measure. Hence, the multitude [of the world] cannot be infinite, since every multitude exists in some species of multitude, and species of multitude are species of numbers. But no species is infinite, since any number is a multitude made by way of one. Likewise, every multitude existing in nature has been created and every creature is included in some certain intention of the Creator, since an unborn agent does not act. Thus, under a certain number are included all created things. So it is impossible that there be an infinite multitude in act [i.e., an infinite universe].[252]

252 *At ex sacris libris nos docemus oppositum. Nam ex dicto illo sapientiae 11 omnia in numero pondere, et mensura disposuisti domine Deus creator coeli, et terrae, admonemur omnia sub certo numero, determinato pondere, finitaque mensura. Ex hoc nec multitudo infinita esse potest, quoniam omnis multitudo est in aliqua specie multitudinis, et species multitudinis sunt species numerorum, nulla autem species est infinita, cum quilibet numerus est multitudo facta per unum; item omnis multitudo in rerum natura existens est creata, et omne creatura sub aliqua certa intentione creantis comprehenditur, quoniam innatum agens non operatur. Ideo sub certo numero omnia creata comprehenduntur. Igitur impossibile est esse multitudinem infinitam in actu.* NUP4, V, 83^{v}.

Patrizi is well aware of the fact that the members of the Index of Forbidden Books, generally speaking, compared books nominated for censorship only with the 'literal truth' of the Bible and, if incompatible with it, condemned them on purely dogmatic grounds.[253] He might have thought that the incorporation of De Lugo's annotations would provide a statement of recognition of official church doctrine sufficient to guard him from prosecution, but he was wrong. He entered into a long and vehement debate with the church over cosmological issues. Patrizi's idea that the world was created from pre-existing space proved to be incompatible with the Christian belief in the Creation of a perfect and therefore finite harmonic world *ex nihilo*. Hence, whereas Patrizi was right in assuming that the Pythagorean doctrine of the harmony of the spheres was so elusive that it was easily reconciled with a theory of infinite space, the Christian interpretation of world harmony could only allow for a theory linking the perfection of God's Creation with the finiteness of the cosmos.[254]

One of the other arduously debated matters in Patrizi's *Nova philosophia* is the precise character of the World-Soul. In contrast with Ficino and Patrizi, the church did not believe that the biblical book of Genesis was fully compatible with the cosmogonic myth at *Tim.* 35b–36b. The question of whether the world is animated by a World-Soul is answered affirmatively by Patrizi, simply because it has an important explanatory function in his cosmology, for the structure and operation of the cosmos could not adequately be explained otherwise in his time.[255] Patrizi defends his choice for a World-Soul by arguing in the line of the *prisca theologia* that most ancient philosophers believed in the truth of such a concept.

According to Patrizi, even Aristotle agreed with Plato that the world has a Soul in the mystic philosophy of the *Theologia* (*Theology of Aristotle*), a text, as explained above, accepted among his works until the end of the sixteenth century.[256] Then, when Aristotle broke with Plato and turned on his opponent,

253 Not until the seventeenth century did the 'literal truth' of the Bible become a subject for vehement debate. On philological grounds, the book of Wisdom was then considered to have been written in the Hellenistic period (second or third century BCE) and was therefore excluded from the core of the Sacred Scriptures in Protestant circles and relegated to the Apocrypha. Consequently, Wisdom 11:20 lost some of the authority it had had until then in the tradition of the harmony of the spheres. See Davies 1990, 409.

254 Koyré 1958, 2, 58–87.

255 *NUP*3, IV, 54[r].

256 For Patrizi's use of this text, see above at 4.1.

he wrote that only a part of the world is animate: the heavens, but not the elements. But a half-animate, half-inanimate world, to Patrizi, is not a real animate being.[257] In his explanation of the doctrine of the World-Soul, Patrizi implicitly blames the Aristotelians of the Catholic Church for their ignorance with regard to Platonic and Aristotelian philosophy. They believe that Aristotelian philosophy is compatible with the Bible, but this is totally wrong. In their defence of a created harmonic world, they think that Aristotle is in line with biblical faith, but they are entirely mistaken. If they had studied Pythagorean sources as well as the *Timaeus*, they would have known that Platonic doctrine on the relationship of God, the World-Soul, and His Creation is fully in line with the biblical truth about Creation.[258]

Although it is as evident for Patrizi as it had been for Ficino that Plato's *Timaeus* is compatible with the biblical Creation story, the doctrine of the World-Soul has always been subject to debate among Christian theologians. Since the Bible has no unequivocal view of this doctrine, Patrizi starts his defence of the World-Soul as the indirect source for cosmic harmonic order with the observation that "recent and ancient theologians differ on three aspects of this issue".[259] Given the lack of a univocal theological point of view, Patrizi, as a lover of truth, feels obliged to advance the doctrine of the World-Soul in order to convince members of the church who think otherwise. First of all, he tries to demonstrate that it does not contradict Catholic teaching and that it does not threaten the safety of human souls. The Catholic faith, he permits himself to argue, has suffered from blind love for Aristotle, and therefore, there are theologians in his time "who prefer the Aristotelian [world] monster, of which [only] the heavens and stars are animated".[260] Aristotelian thinkers have become confused about the harmonic order of the world, through either misunderstanding or misinterpreting Aristotle, who is unclear and inconsistent on the doctrine of the World-Soul.

Following Ficino and other theorists of the narrative of a *prisca theologia*, Patrizi clearly aims at a further intellectualization of the Christian religion. Hence, he envisions God as the First Cause. In his plea for a vision of the world as a rational harmonic being, Patrizi takes pains to demonstrate the traditional doctrine that the pure celestial harmony must necessarily be imitated in some form on Earth. The book of Genesis teaches that God's image is present in every

257 *NUP*3, IV, 54^{v}.

258 *NUP*3, IV, 55^{r}. See Ficino, *TP* III.ii.6., in Ficino 2001–2006, 1 (2001): 240–243.

259 *Theologi vero nostri, et veteres, et recentes, hanc in re trifariam sunt divisi.* *NUP*3, IV, 55^{r}.

260 *Nam alii, Aristotelicum monstrum praeferentes, dixerunt, coelum et astra esse animata.* *NUP*3, IV, 55^{r}.

part of His Creation, and therefore, it is fully compatible with the Timaean cosmogonic myth in which the complete universe is imagined as an animal with a World-Soul. Patrizi is convinced that nature on Earth carries God's image, since all lower beings participate in the higher, all the way up to God, through the third essence of the World-Soul.[261] God as First Cause must be present as mediator in all parts of His Creation so as to endow it with harmonic order:

> And this is certainly what is meant by the apostle [Paul] when he said:[262] "All things were created by Him and in Him. And he is before all: and in Him all things consist". By which he meant the Son, "who is the image of the invisible God, the firstborn of every creature. For in Him were all things created in Heaven and on Earth, visible and invisible".[263]

But with his defence of a perfectly homogeneous, harmonious and animate created world, Patrizi runs into trouble again. As a logical consequence of principle 5 ("Nature makes no leaps; in other words, the progression of being is continuous"), Patrizi believes that he cannot argue otherwise than for the rationality of the soul of animals. Ficino's *Compendium* highlighted the compatibility of his conception of man as the centre of the world with Genesis 1:28, where man is said to "have dominion over every living thing that moveth upon the Earth".[264] In sharp contrast with his predecessor, Patrizi stresses the fact that animals must have rational souls just like men. Fearing that advocating the rationality of animals would be objectionable to the church, Patrizi supplies a biblical argument for his thesis before objections could be raised. He uses the study of animal sound to prove that the book of nature is written in the same language as the Bible and that therefore nature can be beneficially studied to obtain the key to God's harmonic Creation. His defence starts with another annotation by Jacopo de Lugo included in the *Nova philosophia*, which supports the view that the close relationship of man and animal is fully in line with the Bible:

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261 See above at 4.4.1.

262 Colossians 1:15–17. In contrast to Ficino, who used quotations from only the Old Testament in his *CiT*, Patrizi also quotes from the New Testament to demonstrate that his 'new philosophy of the universe' is fully in line with Christian faith.

263 *Et certe hoc voluit Apostolus, quando dixit: 'Omnia per ipsum, et in ipso creata sunt, et ipse est ante omnes, et omnia in ipso constant. de filio intelligens, Qui est imago Dei invisibilis, primogenitus omnis creaturae. Quoniam in ipso condita sunt universa, in coelis, et in terra, visibilia et invisibilia.* NUP2, XI, 24r.

264 For Ficino's ideas about man as master of the world, see 3.2.1.

> Scripture does not deny that simple animals have a certain base intelligence, as is written in the book of Job, chapter 38: "Who has given the cock intelligence?"[265] As the sacred authors want to see it: intelligence should be assumed instead of a certain instinct, according to which the cock, a familiar and domestic animal, crows in the way of someone who does understand, since the cock's instinct about nature itself is given from the divine intellect. This, moreover, is the case: the cock seems to have some semblance of understanding, because it bursts into song at fixed hours as if it knew the proportions of the heavenly bodies.[266]

But whereas De Lugo interprets the crowing of the cock at fixed hours 'as if' it possessed an internal harmonic clock, Patrizi is convinced that it is indeed capable of expressing the harmonic archetypal laws of Creation. What De Lugo hears in the crowing of the cock is of great theoretical import for Patrizi's ideas on cosmic harmony. As opposed to human music, in which the divine harmonic law of God's Creation is easily obscured, the cock's crowing represents the divine proportions of cosmic harmony in unaltered form. Hence, the cock's crowing is presented as proof that its soul participates in the World-Soul, and therefore, it must be rational. Given that its soul participates in the World-Soul, the cock's crowing is seen by Patrizi as the purest echo on Earth of the existence of archetypal harmonic law.

With his open adherence to the Timaean doctrine of a World-Soul providing all parts of the Creation—including the souls of animals—with a harmonic design, Patrizi not only passes down Ficino's view of the subject but also inherits a problem. Patrizi argues that nature is touched with divinity, since all lower beings participate in the higher, all the way up to God. The world, then, has its

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265 Job 38:36. This verse has been translated in many different ways, because even today no one knows the precise meaning of the Hebrew words *tuchot* and *sechvi*, which are used for birds as well as for cognitive faculties. Consequently, during the sixteenth century as well as today there are translations like "Who gives the ibis wisdom [about the flooding of the Nile], or gives the cock understanding [of when to crow]?" (*Today's New International Version*, 1984) and "Who has put wisdom in the inward parts, or given understanding to the mind?" (*New Revised Standard Version*, 1989).

266 *Non negant sacri libri animalia bruta habere aliquam intelligentiam, ut est scriptum in libro Iob. cap. 38 Quis gallo intelligentiam dedit? Ubi volunt sacri scriptores, ut intelligentia sumatur pro quadam existimatione secundum quam gallus animal notus, et domesticus, ad modum intelligentis queretur, quoniam ipsa eius naturalis estimatio ab intellectu divino datur; si hoc autem, videtur gallus quandam similitudinem intelligentiae habere, quod determinatis horis in cantu prorumpit ac si cognosceret proportiones corporum coelestium.* *NUP*3, IV, 59^{v}.

beginning and end in God. He is everywhere, in that all things are the emanation from God; yet he is also nowhere, since he cannot be located anywhere in space. Ficino had formulated this problem as follows: "It is difficult to find where God is. For what is confined by the limit of no substrate or location is nowhere. It is even more difficult to find where God is not; for present in all things is that in which things everywhere exist, by which they are made, through which they are preserved".[267]

Yet as Brickman (1941, 57) notes, there seems to be a weakness in the omnipresent character of God, as Patrizi present it. If God is in all things, and the higher are in the lower according to the latter's capacity, then the omnipresent God—as emanated in the world—is of an inferior quality to the supernal God, the source of emanation. As a solution to this problem, Patrizi borrows Ficino's hierarchy of being, which besides God includes the hypostasis of Unity, which contains the immaterial prototypes of everything in the world. It is through these prototypes that God is in the physical world. Thus, God is in nature only secondarily.

But although Patrizi tried his best to demonstrate that his ideas about the World-Soul did not lead to pantheism, and that his theory of infinite space was compatible with the Holy Scriptures, he could not convince Jacopo de Lugo and his colleagues. Even Patrizi's precautionary rhetorical strategy of including the counter-arguments of the church by incorporating De Lugo's annotations in the *Nova philosophia* did not prevent the book from being placed on the Index of Forbidden Books. The philosophical claims that (1) there is only one Heaven, (2) Earth rotates, (3) the planets and stars are animated and have intellects, and their motion is caused by their souls, (4) animals have rational souls, and, finally, (5) beyond the world there is infinite space simply deviated too much from official church doctrine.[268]

The analysis of the debate presented here corroborates Hankins's (2005, 397ff.) explanation of the difficulties associated with the Christianization of Plato's *Timaeus* in Catholic countries from the late sixteenth century onwards. Hankins observes that the kind of Platonism being promoted by Patrizi was of a much more militant kind than had been espoused by Ficino. For Patrizi, he argues, the best remedy for heresy was to absorb its partial truth into a higher truth. By reforming Catholic theology along Platonic lines, Patrizi hoped to tap

267 Ficino, *TP* II.vi.4, in Ficino 2001–2006, 1 (2001): 122–125.

268 The major part of De Lugo's criticism is aimed at the four new cosmic principles stated in Patrizi's "Pancosmia", which were used alongside the traditional seven first cosmic principles stated in the "Panarchia" but were in fact often incompatible with them. For this criticism, see Patrizi 1970, 217–218; and Rossi 1977, 436–437.

into an ancient wisdom that would permit a higher theological and rational synthesis, which could embrace, rather than suppress, theological traditions outside the Roman Church, including new religious belief associated with the Reformation. But this proclamation in his *Nova philosophia* met with a negative response from the church, which Patrizi in his turn tried to counteract. We may now conclude that concepts originating from both the *prisca theologia* and the Bible—including the doctrine of world harmony and the Timaean cosmogonic narrative—were being defined with much greater clarity and precision in the age of confessional conflict. This had the side effect of bringing to light fundamental problems in the Christianization of the Pythagorean-Platonic doctrine of world harmony. At the same time, however, Patrizi's debate with De Lugo indicates that the inquisitors might have had a role in inspiring him to make his contribution to early modern philosophy.

4.5 Conclusion

Originally, Patrizi nourished great expectations for his own philosophy, because he believed it to be based on a universal theological and rational synthesis. In the dedicatory letter of his *Nova de universis philosophia* he even wrote: "With immense and unremitting effort, I have, it seems to me, brought philosophy to completion".[269] But as we have seen in this chapter, nothing could be less true. Because his attempt to formulate a universal philosophy resulted in quite an inconsistent and ambiguous set of theories, Patrizi is often banished from the history of philosophy and science textbooks as a minor thinker. This chapter has attempted to provide a corrective to this evaluation. It has presented a reading of the doctrine of cosmic harmony from the point of view of someone on the frontier of the geocentric cosmos and the heliocentric universe. With this, it has offered an understanding of topics on cosmology and natural philosophy that stood high on the agenda of natural philosophers of the second half of the sixteenth century. Furthermore, it has suggested how, in the age of confessional conflict, the defence of religious belief led to new natural philosophical insights into the universe.

The analysis of Patrizi's conception of world harmony presented in this chapter endorses Copenhaver and Schmitt's (1992, 288) conclusion that Patrizi's universe, like Ficino's, was still partly an enchanted harmonic world of ensouled objects linked together and joined to a higher realm of Soul, Spirit

269 *Et ingenti, sed obstinatissimo labore, ad finem, eam mihi videor perduxisse.* NUP, [Ad Gregorium XIIII], II^{v}, III^{r}.

and absolute Being. Hidden symmetries and secret marks of correspondence animate and symbolize Patrizi's world, which is charged with organic sympathies and antipathies. Just like Ficino before him, Patrizi continued to conceive of the task of a natural philosopher in terms of breaking these codes and uncovering their secrets. He held the view, moreover, that the doctrine of the harmony of the spheres provided a key to deciphering nature's secrets. Even if he wanted to read God's book of Nature, he could make sense of it only through the lens of the books of the ancients and interpretations of them by predecessors like Ficino.

In contrast with Ficino's magical view of nature, however, Patrizi was not interested in methods to manipulate cosmic powers for practical use. As the full programmatic title of his *Nova philosophia* indicates, Patrizi claimed that his method was based on experience as well as book learning. Yet Patrizi did not use experience and mathematical deduction as a method of study, as his contemporary Giovanni Battista Benedetti or, at a later date, Galileo did.[270] Thus, Patrizi's appeal to the ancient theory of planetary spheres as mathematical places rather than crystalline spheres was far less concerned with the geometrical structure of the planetary orbs than with establishing the inherently divine and animated nature of the world. Yet as demonstrated in this chapter, Patrizi's "De spacio mathematico" is important because it reflects one of the earliest stages in the mathematization of the world picture, which Koyré, and many scholars after him, has seen as a defining feature of the Scientific Revolution.[271]

The parts of the *Nova philosophia* dealing with the decline of numerology and the development of a new kind of mathematics deserve the attention they received from Patrizi, because they document the process in which philosophy of nature divested itself from music-theoretical concepts. While "De spacio physico" has long been recognized as an important early philosophical exposition of the modern view of absolute space, the concern of "De spacio mathematico" to establish, at least in general terms, the mathematical principles of natural philosophy has hitherto been noticed by only a few scholars, such as Brickman (1941), Schuhmann (1986, 1988), and Henry (2001). In this respect, this chapter has tried to further this research by providing insight into Patrizi's transformation of the mathematical foundation of the doctrine of the harmony of the spheres from numerology to a new kind of 'experimental' early modern mathematics.

As Henry (2001, 133ff.) observed, the fact that Patrizi was no mathematical practitioner explains in part why Patrizi's role in the story of the birth of

270 See Rose 1975, 154–156; and Röd 2000, 250.

271 See Shapin 1996, 177–181.

modern science and the mathematization of the world picture has often been overlooked.[272] This, together with the somewhat obscure way in which he presented his case in "De spacio mathematico", has surely prevented recognition of the importance of his arguments. A modern scholar who looked at this book of the "Pancosmia" might go no further than Patrizi's faulty claim that indivisible lines, which are not geometrical points, can be compatible with geometry. Yet interpreted from the history of theories of the harmony of the spheres, the work provides insight into the complex transitional stage between thinking in terms of the numerical structure of the World-Soul and thinking in the new mathematical terms associated with an emerging new kind of natural science. Furthermore, the analysis of Patrizi's reformulation of the four mathematical disciplines presented above helps us to understand how the tradition of the harmony of the spheres was both an incentive and an inhibitor in Patrizi's mind, relegating him to a minor role in the history of the emergence of a new kind of mathematical science.

In spite of the surprisingly extensive interest in mathematics among humanist scholars revealed by Rose (1975), it still seems safe to assume that most natural philosophers at the end of the sixteenth century agreed with Aristotle's allegation, as reported by Patrizi, "that mathematics has neither end nor use".[273] Whether Patrizi can be shown to have had any influence in this respect requires further research. But even if no such influence can be shown, Patrizi's transmission and reception of ideas from the tradition of the harmony of the spheres can still be seen as an important confirmation of the historical changes in the status of numerology and mathematics pinpointed in recent historiography. Further research is required to determine precisely how Patrizi's attempt to provide a philosophical justification for the mathematical realism being developed by increasingly confident mathematical practitioners at the end of the sixteenth century stimulated the debate about the certainty of mathematics.

It seems safe to conclude that Patrizi banished the belief in the *music* of the spheres from his philosophy of nature simply because he found it indefensible to believe that the universe is ordered by the same numerical proportions that produce harmonies in earthly music. He, moreover, could conceive of a sounding planetary symphony only in terms of an anthropomorphic projection. Nevertheless, his belief in the *harmony* of the spheres was as strong as Ficino's. Although Patrizi often drew upon arguments from the tradition of the

272 Patrizi is not mentioned in, e.g., Dear 1995, 2001; or Shapin 1996.

273 *Unde falsam fuisse apparet Aristotelis assertionem, qui mathematicas fine, et utilitate carere docuit.* NUP4, II, 68v. Quoted above at 4.3.

harmony of the spheres, his major concern, in sharp contrast with his predecessor, was far from developing a new harmonic or musical view of the cosmos. On the contrary, his ambition to develop a new theory of the universe led him to resort to concepts taken from ancient theories of world harmony to resolve theoretical difficulties and lacunae.

Patrizi had his own philosophical agenda, and he developed a philosophical eclecticism to help him to achieve his aims. In order to establish an infinite, undifferentiated physical universe, he drew upon the arguments about the nature of void space found, for example, at *Tim.* 50c–51b. In order to establish the reality of the kind of space which Patrizi seems to have regarded as required for a Platonic world of mathematical ideals, he had to deconstruct the Timaean doctrine of the harmonic structure of the World-Soul (*Tim.* 35b–36d), which expressed the belief that numbers are natural constituents of the cosmos and that their proportions are the natural foundations of both the universe and consonances in earthly music. In sharp contrast with traditional doctrine, Patrizi argued that numbers and consonances are conventional constructs which cannot be used to measure and understand the universe. This view manifested itself most clearly in his treatment of the phenomenon of the tides, where an explanation in terms of the harmonic structure of the World-Soul was overruled by a tentative explanation in term of harmonizing natural powers (*Tim.* 57d–58c).

During the process of rediscovery of ancient sources which took place during the Renaissance and early modern period, many conceptions originating from the Pythagorean-Platonic philosophy of nature were reused, modified, and sometimes even transformed into their opposite. This is clearly evident in the development of the mathematization of space, through which philosophy of nature and physics were associated with Platonism. This tendency manifested itself in the first instance predominantly in the development of a static-geometric view of nature, which was later developed into a mechanistic view of nature. The mathematization described by Koyré led to the mechanization described by Dijksterhuis.[274] Early modern physics used mathematics, but it did not deal in great detail with the mathematization of qualities and proportions in nature, as Plato did in the *Timaeus*. Patrizi's defence of Plato's theory that mathematics is prior to physics is in line with the development of a new kind of mathematical science. Yet his use of the *Timaeus* to reconceptualize natural phenomena such as the tides demonstrates that he was still fully immersed in the mathematization of qualities and proportions of a world of ensouled objects linked together and joined to a higher realm of Spirit as part of the Divine.

274 Koyré 1958, 28–87; and Dijksterhuis 1969, 287–385.

The breaking away from classical cosmological sources in late sixteenth-century Italian philosophy of nature was a gradual process of transformation instead of a sudden revolution. During this transformative process, the Pythagorean-Platonic concept of world harmony continued to persist in physics even during the seventeenth century and later. Even though cosmic order was interpreted differently after the Renaissance, the belief that reality possesses one all-inclusive form, in which things in nature as well as human thoughts participate, remained a valid methodological view. But by then, numerology and music theory had increasingly ceased to function as an external point of reference in scientific methodology.

Much of the recent work on the role of music theory in the Scientific Revolution has followed on from suggestions of Walker (1985, 1989), Haar (1961, 1997), and Palisca (1985, 1994). Here again, there is a major difference between Patrizi and the many and various historical figures looked at by the scholars working in this area, and this difference explains again why Patrizi's place in the story of the role of music for the birth of modern science has been often overlooked. Quite obviously, unlike Ficino and Vincenzo Galilei, Patrizi was not a musician, music theorist, or composer.

On the face of it, in the field of music theory it looks as if Patrizi copied Galilei's theory arguing for the conventional character of numbers and musical ratios and proportions without giving any further thought to the consequences of this stance for his belief in world harmony. Yet it is also quite possible that it was Patrizi's deliberate choice; that is, he thought that belief in the real existence of the music of the spheres was indemonstrable in the field of a philosophy of nature and therefore decided to support Galilei's ideas about tuning and temperament. Needless to say, with the original theory of Galilei's *Dialogo* in print, there was no need for Patrizi to restate its solutions to practical musical problems. Yet there is some value in Patrizi's borrowed Aristoxenian mathematical instrumentalist view on the conventionality of tuning and temperament, as it illustrates how knowledge circulated in intellectual circles at the end of the sixteenth century in Italy.

In the field of music theory, the lack of faith in the sense of hearing was to a certain degree due to the primary task of music theory, which was to establish a system of intervals. When this task could no longer be carried out by mathematical means at the end of the sixteenth century, traditional music theory, associated with mathematical realism and Pythagorean number theory, lost part of its right to exist. In this impasse the Aristoxenian method of establishing a tuning system naturally aroused curiosity. Furthermore, Aristoxenus's trust in the judgement of the sense of hearing could be considered a confirmation of the purely practical method employed by a musician when tempering instru-

ments of different families for concert performances. Although calculations of individual intervals and interval systems went on in the seventeenth century and later, in the late sixteenth century music theorists began to an attempt to reflect what was going on in the musical practice of their time. In this way the perception and evaluation of elementary sound qualities (consonance and dissonance) gave way to judgements about musical compositions. Since such judgements could hardly be grounded on mathematical propositions, this change necessitated the reforging of fundamental musical concepts. Again, the Aristoxenian approach seems to have been particularly useful. Instead of identifying the task of reason in musical studies with a universally valid mathematical demonstration, Vincenzo Galilei and Patrizi judged compositions according to certain aesthetic values, as I will analyse in further detail in chapter 5.

Even though it is always dangerous to draw comparisons between different disciplines, this chapter leads to the tentative conclusion that it is nevertheless not outside the bounds of possibility that there may be some relationship between the new science associated with the mathematization of space and the attempts of late Renaissance music theorists to rationalize their musical space by introducing a kind of tuning and temperament which was compatible with the new tonal harmonic practices of this period. If such a relationship does indeed exist, Patrizi can be seen as an advocate of rationalization in terms of both cosmic order and music theory.

Despite all its flaws and weaknesses, Patrizi's innovative thought in the fields of cosmology and music theory was sufficient for some scholars after him to persevere with his innovative concepts even while acknowledging their inherent weakness. Eventually, as is well known, Patrizi's undeveloped theory of planetary spheres as mathematical places was to lead to the development of Johannes Kepler's astonishingly successful theory of the geometric structure of planetary motion.[275]

Patrizi's observation that cosmology at the end of the sixteenth century had almost led to a new chaos was in itself correct, but he himself was not able to transform the doctrine of the harmony of the spheres in such a way that it would fit the emerging new view of the universe with its unequally spaced planetary spheres and its irregular planetary orbits. Whereas Patrizi adhered to an updated version of the harmonic geocentric cosmos, Kepler became the first scientist to formulate a theory of cosmic harmony compatible with a heliocentric vision of the world. But even such a revolutionary figure as Kepler was highly indebted to the worldview of the *Timaeus* commentary tradition of

275 For the relationship between Patrizi and Kepler, see, e.g., Rossi 1977, 407–410, 415–416, 429–434.

which Ficino and Patrizi were part: he conceived of the *Timaeus* as an interpretation of the biblical Creation story and had no doubt whatsoever about the perfect archetypal harmonic design of Creation.[276] Yet in spite of all its flaws and weaknesses, it was Patrizi's *Nova philosophia* which gave to the new science and the new vision of the world in the seventeenth century some elements of the metaphysical framework that ensured their development.

276 Martens 2003, 251.

CHAPTER 5

Man's Nostalgia for a Lost Musical Paradise

5.1 Introduction

Francesco Patrizi's new natural philosophical attitudes also influenced his enquiry into the nature of music and aesthetics.[1] As we have seen in chapters 2 and 3, within the tradition of the harmony of the spheres, theorists of music had long been elaborating complicated intellectual systems whose relations with the world of actual musical practice usually were quite weak.[2] It was not until early humanist theorists of music such as Ficino began to come onstage that serious attempts were undertaken to reconcile Pythagorean harmonics and music theory with contemporary musical practices. With Ficino as the perfect example of an all-round *musicus* in mind, Patrizi follows his way of building bridges between music theory and practice. In this chapter I will investigate how his interpretation of *musica mundana* in the field of music aesthetics is determined by its terrestrial imitation, and how his efforts to bridge world harmony and earthly music reflect great changes in the general position of music theory.[3]

In chapter 3 we have seen how, in contrast with medieval thought, Ficino had been trying to formulate a view of music which had a much closer relation with music as actual sound. Ficino often generated new ideas about the relationship between *musica mundana* and *musica instrumentalis* but expressed them in the old language of the tradition of the harmony of the spheres, and this in turn led to difficulties in interpreting both his terminology and his actual ideas. Notwithstanding the difficulties, the way in which Ficino restated the Pythagorean theory of world harmony provided a great source of inspiration for some highly influential sixteenth-century Italian philosophers and music theorists, including Patrizi.[4] Patrizi furthers the new humanist views on cosmic harmony, musical creativity, and monodic music of Ficino and some of his famous contemporaries, such as the music theorist Franchinus Gaffurius, whose *Theorica musicae* (*Music Theory*) was in Patrizi's possession.[5]

1 See Leinkauf 2010.

2 Fubini 1990, 130–131.

3 Haar 1961, 356.

4 See Walker 1958, 25–29; and Ehrman 1991.

5 See 4.3.2.

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As we have seen in chapter 4, Patrizi's rationalist approach towards the discipline of music in the context of his philosophy of nature gave rise to a radical transformation of the doctrine of a *musica mundana*. The well-known basis in nature for the existence of the three Pythagorean consonances, which could be exactly expressed in terms of mathematical ratios, was put in jeopardy by Vincenzo Galilei and Patrizi, because they found it necessary to think in terms of sound and temper the intervals of the Pythagorean and just scales by means of the adjustments associated with equal temperament, which gave musicians the practical possibility of ensemble playing and easily modulating from one key to another. Evidently, in doing so, Patrizi abandoned the dominant conception of the famous doctrine of the harmony of the spheres. In the field of acoustics, the inaudible world harmony had to make place for music as a purely scientific object of study. This reduction was based on a corresponding rational and mathematical interpretation of the world of nature, of which acoustics as a branch of music theory was still supposed to be a faithful image.[6] Patrizi's view of the mathematical discipline of music bears witness to the fact that a new interpretation of the relationship between cosmic order and music theory was in the making, whose contours will be studied in further detail in this chapter.

As Palisca and many others have shown, in the sixteenth century there was a fruitful dialogue between theorists, composers, and performers, in which Patrizi as an active member of several late sixteenth-century Italian academies played an active role.[7] Patrizi's ideas on music influenced the course of the history of music in general and the doctrine of the harmony of the spheres in particular. Building on Max Weber's rationalization thesis, in this chapter I will show how tonal harmony and equal temperament, and their gradual acceptance by theorists and musicians, can be interpreted as an important aspect of larger and more deep-seated changes in many areas of late sixteenth-century musical culture, including the manner of performing and understanding music, and the changing role of musicians and their relationship with their listeners.[8]

Theoretical ambiguity characterizes Patrizi's conception of the doctrine of the harmony of the spheres on a fundamental level. In contrast with Ficino, who dealt with its music theory as an integral part of his cosmology, Patrizi chooses to deal with it in the context of aesthetics, in his *L'amorosa filosofia*

6 For Patrizi's view of the quadrivium, mathematical realism, and instrumentalism, see 4.3.

7 For Patrizi's place in the history of the different Italian Renaissance academies, or *camerate*, see Bianconi and Pestelli 2003 66–67; Bolzoni 1981a 1981b; Fenlon 2002, 118–138; Kimbell 1991, 41; and Palisca 1968; 1989, 11, 109, 136–137.

8 Weber 1958, 104–124.

(*Philosophy of Love*; 1577)[9] and in his *Della poetica* (*On Poetics*; 1586).[10] In this chapter I will focus on the consequences for the tradition of the harmony of the spheres resulting from Patrizi's decision to move music away from the mathematical sciences belonging to the quadrivium to the rhetorical arts belonging to the trivium.[11] I will argue in line with Chua (2001, 17ff.) that through his transfer of music from the quadrivium to the trivium the music of the spheres becomes part of the realm of *musica humana*, shifting the wondrous harmonizing power of the cosmos to the realm of human nature.[12] Sound as a scientific fact of the physical universe is contrasted by Patrizi with music as an interior, moral power of human nature (*ethos*) which can be expressed above all through the human voice.

This transformation will be dealt with as an example of Patrizi's strategic use of the concept of world harmony in the context of his philosophy of music to evoke associations with outdated cosmological ideas, thus producing new meanings. I will argue that once the Pythagorean secret connection between number and sound has been dismissed and, as a result, sound has become a neutral object in the discipline of acoustics (a development discussed at 4.3.2), music has to be re-enchanted to preserve its cosmic meaning.[13] The elusive concept of the harmony of the spheres is ideally suited for this purpose, as will be demonstrated in this chapter.

This transformation is fully in line with Patrizi's new view of the universe and human nature. At 5.2, I will explore how in his anthropology Patrizi tries to free himself from many of the theological, metaphysical, and mathematical preconceptions that had dominated theories about the relationship between cosmic order and music theory until Ficino. Patrizi does not appeal exclusively to authoritative sources for answers to theoretical or practical problems but also tries to find answers by observing nature. Yet, in general, when he is reading nature, he is capable of doing so only through the lens of these authoritative sources.

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9 For the modern edition of *L'amorosa filosofia*, see Patrizi 1963. For an English translation, see Patrizi 2003. Hereafter *L'amorosa filosofia* is abbreviated as *AF* in the notes. For an analysis of *AF*, see Nelson 1962.

10 For the modern edition of Patrizi's *Della poetica*—abbreviated as *DP*—, see Patrizi 1969–1971. For an analysis of *DP*, see Bolzoni 1980; Hathaway 1962, 77ff.; Schiffler 1993; and Weinberg 1961, 2: 765–786.

11 For Patrizi's music philosophy, see Aguzzi-Barbagli 1983; Palisca 1985, 402–405, 412–418, and 425–426; and Tuksar 1980; 1992.

12 Chua 2001, 18.

13 For Weber's ideas about disenchantment and re-enchantment, see Chua 1999, 12–22.

According to Patrizi's *De humana philosophia* (*On the Philosophy of Man*; 1590), this nature first of all consists of man's freedom to retrieve a lost harmonic paradise by means of a spiritual journey undertaken during earthly life.[14] In defining the essence of man in terms of the normative task of restoring the original harmonic nature of his soul, he seems to pass down Ficino's ideas about *musica humana* unchanged. Yet whereas Tomlinson (1993, 214) concluded in comparing Ficino and Patrizi that the latter adopted these Neoplatonist ideas on poetics and music almost unchanged, I will argue that Patrizi's music philosophy in some respects differs widely from that of Ficino. These differences, however, are not always manifest in the technical terms used by Patrizi, which are quite similar to the ones used by Ficino, but appear instead in the underlying changing conceptions of rationality.[15] I will try to demonstrate that during the late sixteenth century, against the backdrop of the emergence of new naturalistic ideas, it becomes increasingly problematic to support the traditional normative idea that the human soul is essentially harmonious in character. For this purpose, at 5.2.1, Patrizi's critique of Ficino's Eros doctrine will be addressed. This issue, however, should be more broadly understood as an aspect of the question of whether man is just a special kind of animal or made in the image and likeness of God, the subject of 5.2.2. Finally, at 5.2.3 Patrizi's view of a changing relationship between the intellect and the sense of hearing will be discussed.

At 5.3, I will study in further detail how Patrizi transformed the discipline of music from a mathematical science into a rhetorical art. First, at 5.3.1, Patrizi's investigation into the musical foundations of human and animal speech will be analysed as part of his desire to return to the simplicity of the music of the natural world as an antidote to the supposed decadence of the music of his own time. Next, at 5.3.2, his new musical semantics modelled after ancient Greek music will be explored as a counterpart of this project. During the second half of the sixteenth century, many composers and writers on music were looking for a return to the simplicity and efficaciousness of the music of the ancient world to remedy a crisis they perceived in the music of their own times, especially in complex polyphonic compositions. Just like Ficino before him, Patrizi associates the new music of his times, which is an accompanied monodic way of singing, with ancient Greek music, which he believes

14 For Patrizi's *De humana philosophia* (hereafter abbreviated as *DHP* in the notes), see Muccillo 1990, from which the Latin quotations from *DHP* in this chapter derive.

15 For the process of rationalization of the musical materials, see Weber 1958, 40–65; and above at 4.3.2. Corroborative evidence for a change of rational paradigm in the context of Patrizi's philosophy of language is found in Gerl 1982. For the rise of aesthetics rationalism in early modern Europe, see Reiss 1997.

consisted of the singing of a solo voice or of a unison choir.[16] In his opinion, the Greek doctrine of musical *ethos*, the individual character appertaining to each musical mode, harmonizes well with the modern view that music should 'move the affections'.[17]

In contrast with Ficino, however, Patrizi seems to have been aware that unlike the case with many other art forms, it was materially impossible for a composer to model his music on actual Greek examples, because in the field of music the models had vanished many centuries ago. I will demonstrate that in combination with the elusive character of the doctrine of the music of the spheres, the absence of source material stimulates Patrizi's creativity to merge it with the age-old doctrine of musical *ethos*: that is, music's power to shape and condition the human soul. I will argue that in this process, the tradition of the harmony of the spheres functions as a legitimation for a new aesthetics of music based on rational simplicity and a linear quality, which early musical humanists like Ficino saw as the essential qualities of Greek music. In Patrizi's music theory, these qualities emerge as new ideals, seemingly attainable again thanks to the development of the new tonal harmonic structures and equal temperament, which I discussed at 4.3.2.

In his *Della poetica* Patrizi is aiming at a comprehensive description of the grammar, syntax, and lexis of the very kind of musical language discussed and used by the early composers of opera. In this context, he understands harmony no longer as *musica mundana* but rather as the whole body of laws on which the art of musical composition should be based. Hence, his search for a system based on a closer correspondence between words and music also comes to influence the doctrine of the harmony of the spheres. In addition, his *Della poetica* attempts to reconstruct the history of poetry, music, musical instruments, and musical performance practice in antiquity. Special attention is given to stories about legendary musicians, because these tales, though they strain credulity, reveal the character and marvellous effects on the human soul of music long forgotten.

At 5.4, I will discuss Patrizi's transformation of the doctrine of the harmony of the spheres into a musical expression of the ineffable. In his *Della poetica*, Patrizi develops a theory of the artist as creator which is inspired by Ficino's concept of creativity discussed at 3.2.2. This theory, in which creativity is defined in terms of possession by *furor* or inspiration, is formulated in reaction to Aristotle's idea of poetry as imitation, as I will establish at 5.4.1. Patrizi contrasts the Aristotelian view with his own Neoplatonic view, in which verse is

16 See Palisca 1985, 412–418, and 425–426.

17 See Fubini 1990, 127–130; and Palisca 1985, 405–407.

defined as the essence of poetry and in which free choice of content, the poetic imagination, the marvellous, the sublime, the autonomy of artistic creation and expression, a unique kind of poetical truth, and the universal language of poetry are seen as essential values.

Patrizi's aesthetics is fully in line with an emerging musical practice at the end of the sixteenth century in which famous composers such as Cipriano de Rore start to attach greater importance to freedom of artistic expression. This is a period, furthermore, in which composers begin to write their compositions with an eye to entertaining an audience and in which performers, like the famous soprano Tarquinia Molza, begin to perform music to dazzle their audiences. Thus, as Fubini (1990, 116), in line with Weber (1990, 116), argues, composers and musicians increasingly feel the need for a simple, rational, concentrated, and easily intelligible musical structure, and the use of such new and simpler structures helps them to satisfy the requirements of their new audience in the most fitting manner possible.[18] Although music theorists and composers at all levels feel that in order to communicate with their audiences, harmonic structures need to be rationalized and simplified, this conviction conflicts in no way with the view that music was meant to move the affections, or, in Ficino's jargon, to touch the strings of the human soul.

In Ficino's religious and magical musical practices, shared feelings of religious piety that were stirred during specific ceremonies seemed to have been sufficient to sustain the interest of the faithful. Yet since a great deal of the new secular music of the sixteenth century is addressed to various listeners individually without such a sense of spiritual community, composers and performers feel the need to find an appropriate means of stirring them and drawing them into a musical experience. In contrast with Ficino's improvised magical music, this has to be a kind of music that audience members can readily and unambiguously understand as they listen. As Weber (1958, li–lii) has argued, the secularization of music that takes place in this period makes the purpose of music more and more explicit, or, in other words, disenchants it. The tonal harmony and equal temperament that Patrizi defends seem to be the basic preconditions for a logical and linear structure within which it will be possible to construct a musical argument able to induce a moving musical experience and at the same time entertain a listening audience.[19]

In order to construct a composition by which an audience could be emotionally seized as well as entertained, the members of the famous Florentine

18 For the music performed at the Ferrarese court in this period, see Newcomb 1980; and Durante and Martellotti 1989.

19 For Patrizi's discussion of tuning and temperament, see 4.3.2.

Camerata began to insist that every word in a musical composition having a precise meaning should be matched with a corresponding musical equivalent.[20] Patrizi shares this ideal of the Camerata with colleagues such as Vincenzo Galilei, whose *Dialogo della musica antica et della moderna* he studied in detail (see 4.3.2), Girolamo Mei, and Giovanni de Bardi, with whom Patrizi, as a member of the Accademia della Crusca, entered into correspondence.[21] All of them clearly see the words as the pattern for which the music should provide a suitable match, and to which it must subordinate itself. Patrizi is one of the first music theorists who aim to formulate a semantic theory of music, which is the focus of the third section of this chapter.

At 5.4.2, I will discuss Patrizi's view of the marvellous as basis for a new theory of musical magic. Patrizi's ideas about music embodies a paradox: he seems simultaneously to want to strip the world of unscientific accretions in his philosophy of nature and to add them to the realm of poetics and music. To clarify this seeming paradox, I will analyse this in terms of Weber's thesis that the increasing rationalization of musical materials in this period, envisaged as the disenchantment of the world, was coupled with a countermovement of re-enchantment.[22] I will argue that in his poetics Patrizi laments the loss of meaning of a harmonic world, occasioned by the removal of the discipline of music from his philosophy of the universe, by idealizing the miraculous power of the music of the ancient world, which must be reconstructed in a utopian future. I will demonstrate that Patrizi's scientific interrogation of the very foundation of music runs parallel to his attempt to reinvent, in his *L'amorosa filosofia*, a modern musical magic through a theory of the power of wonder, as embodied in the human voice of his beloved singer Tarquinia Molza.[23]

Finally, at 5.4.3, Patrizi's restatement of the doctrine of the harmony of the spheres as experience of the musical sublime will be discussed. In this section I will argue that Patrizi's *L'amorosa filosofia* and *Della poetica* bear witness to the fact that a new musical reality is in the making, in which expressivity is more important than beauty. This has important consequences for the doctrine of the harmony of the spheres, which is traditionally associated with beauty and proportion in musical compositions. If we are seeking clues to the nature of this new kind of imitation of heavenly harmony in earthly music, we should be looking not only at written compositions but also at their performance

20 Fubini 1990, 127–130. For the Florentine Camerata, see, e.g., Palisca 1989.

21 For Patrizi's place in the Accademia della Crusca, see Rinaldi 2001.

22 Weber 1958, li–lii.

23 For the relationship between Patrizi and Tarquinia Molza, see Cavallari 2002; Stras 1999; and Ulffers 2002.

practices, for which written sources exist. In order to reconstruct Patrizi's concept of the harmony of the spheres in the context of his aesthetics of music, a specific performance practice of De Rore's song "Hor che 'l ciel e la terra e'l vento tace" ("Now that the sky and the earth and the wind are silent"), which is discussed in great detail in *L'amorosa filosofia*, will be analysed at the end of this chapter.

5.2 Questioning the Belief in a Harmonic Design of the Human Soul

5.2.1 *Critique of Ficino's Eros Doctrine*

Patrizi takes up Ficino's doctrine of cosmic love as a harmonic power and seeks to utilize it critically in his cosmology (see 4.2.2), anthropology, and aesthetics.[24] As I have shown at 3.4.1, Ficino built his theory of the harmonic structure of the human soul and his doctrine of individual immortality not so much upon a concept of the human intellect as upon that of human will.[25] In his Eros doctrine Ficino's psychology and theology met and indissolubly fused with each other. During the sixteenth century, his theory of love constituted an inexhaustible topic of academic conversation.

In Plato's *Symposium* Eros belongs to a middle realm of being.[26] He stands between the divine and the human, between the intelligible and the sensible worlds, and he must relate and join them to each other. Just like a musical harmony, Eros can create unity in multitude (*pluribus unum*: unity precedes plurality; cosmic principle 4).[27] Ficino used the power of Eros to explain cosmic processes of attraction (sympathy) and repulsion (antipathy) as dynamic manifestations of cosmic harmony. In doing so, his theory of the cosmic harmonizing powers supplemented the rather static description of medieval conceptions of the Pythagorean harmonic cosmos. Given that he conceived of man and his earthly music as integral parts of the cosmos, Ficino was able to characterize man also in terms of an innate cosmic drive to return to God as his First Cause, which could be symbolized in tonal music by a return to the tonic. As Cassirer (1963, 132) explains, Ficino's theory of love is based on its being a completely reciprocal process. Man's striving towards God, represented in

24 For Ficino's theory of cosmic love as cosmic power, see 2.5.2. This theory is based on ideas in his *De amore* 3.i. For the demolition of the Platonic myth of love in Patrizi's *AF*, see Vasoli 1989, 181–204, which does not address the music aesthetics of the treatise.

25 For Ficino's theory of Eros, see 3.2.2.

26 See Cassirer 1963, 131ff.

27 For the seven cosmic principles in Ficino's and Patrizi's philosophy, see 2.3.2 and 4.4.1.

Eros, would not be possible without a counter-striving of God towards man, who is created in God's image and likeness.

In addition, Ficino passed on a Christian mystical view of knowledge, in which knowledge and love are indissolubly bound to each other. He firmly believed that the mind could not turn to consider any object in a purely theoretical fashion unless driven to it by an act of love. As Cassirer (1963, 143) notes, this doctrine is taken up and systematically developed by Patrizi in the "Panarchia".[28] But Cassirer's discussion omits the fact that in his *L'amorosa filosofia* Patrizi heavily criticizes the very same doctrine of love. As this criticism of the Platonic concepts of love touches on Patrizi's views about the harmonic structure of the human soul, it will be discussed here.

In his *L'amorosa filosofia*, Patrizi attacks Ficino's theory of man as a co-creator of his own being, bound to undertake a spiritual journey through all spheres of being to resuscitate his knowledge of the archetypal harmonic structure of the cosmos and to realize his own harmonic being. Instead, Patrizi confronts the normative religious conception of the human soul with a naturalistic view in which the human soul is characterized as essentially driven by self-love and egoism.[29] Whereas in Ficino's philosophy the harmony of the human soul belonged to an overall view of the universe as a musical Creation, in Patrizi's philosophy there is a tendency to classify the concept of *musica humana* as a normative convention about human nature, which disguises some essential parts of human nature.

Inspired by Diotima in Plato's *Symposium*, in *L'amorosa filosofia* Patrizi makes the famous singer Tarquinia Molza the spokeswoman for his natural philosophical view of the human soul.[30] The most important lesson he learns from his muse is that the whole cosmos is permeated with *philautia* (self-love), a natural kind of willpower that exists in both humans and animals and that is aimed at self-preservation. Patrizi argues that love manifests itself in many ways in the cosmos, from God's divine love for His Creation and human love for God to human erotic love. Yet ultimately all different manifestations of love can be reduced to a naturalistic concept of self-love. In the explanation of his theory of love, Patrizi lets Tarquinia define *philautia* as follows:[31]

> *Tarquinia*: You understand it well. And on the other hand, 'self-love' refers to the first and, so to speak, primordial love, which all human beings, all

28 *NUP*2, XV, 31[r].

29 Patrizi 1963, 102.

30 *Symposium* 201d–204c.

31 For the sources of Patrizi's *AF*, see Vasoli 1989, 194.

> animals, and ultimately all things naturally and from the moment of birth possess for themselves, through which they love their own being, their well-being, and their preservation. This is the principle and source and foundation of all other forms of love and of all passions of the soul and of all thoughts and actions, passions, studies, and exercises we perform, howsoever they occur.
> *Patrizi*: What you say about this second kind of 'self-love', my lady, is great, and never have I heard about it.[32]

In Patrizi's confirmation of love as a kind of blind will aimed at self-preservation, a transformation in thinking about world harmony manifests itself. His descriptive, naturalistic concept of self-love, which is present in all parts of the animated cosmos, replaces Ficino's normative, metaphysical concept of universal love, which, as a cosmic bond, guarantees unity and harmony among all different parts of the world, including human beings. Patrizi here deconstructs the vision of human beings as integrated parts of a positive, teleological cosmic network of sympathetic relationships that grants purpose and meaning to their lives. The unifying naturalistic explanation of love as blind willpower that he offers as an alternative negates a model of the world in which antithetical powers manifest a kind of underlying perfect harmony.

Moreover, in contrast with Plato and Ficino, Patrizi conceives of human erotic love not as a preliminary stage of true love for God but as a basic expression of human nature. Yet he shrinks from defining man completely in naturalistic terms. As with his view of the universe, he ends up with an ambiguous view of man, in which a description in naturalistic terms combines with a metaphysical view of man's immortal soul. Ultimately, Patrizi conceives of the essence of human nature as bipartite: God created man with a soul and a body. Man's participation in the external aspects of God's Creation moves him to gratify his bodily desires, but he does this without losing his spiritual capacity for ascent and for becoming a co-creator of his own nature.

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32 *Tarq. Bene intendete. Et dall'altro lato, la philautia è presa per quello amore primiero, et per così dire originale, che tutti gli huomini, tutti gli animalie et in somma tutte le cose per natura e dal primo loro nascimento portano a se stesse, per lo quale amano l'essere proprio et il bene essere loro et il sempre essere. Et il quale è principio e fonte et fondamento di tutti gli altri amori et di tutti gli affetti dell'animo et tutti i pensieri et di tutte le attioni, di tutte le passioni, di tutti gli studi e di tutti gli essercitij che noi facciamo, di qualunque maniera essi si sieno. Patr. Gran cosa è cotesta che voi dite, o signora, di questa seconda philautia, et da me non più udita*. Patrizi 1963, 102; translation modified from Patrizi 2003, 132.

Patrizi's theory of *philautia* brings about another transformation in traditional concepts of world harmony. Despite his belief in Creation, he deconstructs the belief in God's everlasting unselfish love for His own Creation and defines it as just another kind of self-love:

> And He [i.e., God] did this [i.e., creating things from His absolute Goodness] not out of love for the things themselves, which were not yet made, but out of love for Himself and for His own Goodness, which He could not leave unutilized, contrary to His own nature, but while He made it [i.e., His Creation] similar to Himself, He established it in such a way that it would function according to His inclination and desire. This correspondence of God's Goodness [and His Creation] is love or is generated out of love.[33]

Though the universe is still made in the good and perfect image and likeness of God, the traditional Christian image of God has changed completely from a loving Father of all his creatures to someone driven by self-love.

Patrizi goes a step further in his demolition of traditional religious beliefs associated with the doctrine of world harmony. He argues, for example, that the hope for reunion with God and for an eternal harmonious life in the hereafter can cause a human being to pretend to love his enemy.[34] Therefore, the love of one's neighbour and charity must be distrusted and cannot be interpreted as manifestations of universal love. According to Patrizi, even Christian types of altruistic love are motivated by an egoistic desire for eternal life, which proves that ultimately the human essence is characterized by self-love rather than love for the Creator as a manifestation of a kind of cosmic Eros.

In conclusion, in this part of *L'amorosa filosofia*, Patrizi does not characterize man as a co-creator of his own harmonic being able to make life on earth

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33 *Et questo il fece* [*produrre le cose mosso dalla somma sua bontà*] *egli non già per amore delle cose, le quali non ancora erano prodotte, ma per lo amore che egli portava a se stesso et alla sua bonta, la quale non patì egli che istesse otiosa, contra alla propria natura sua; ma conformandosi seco la pose in opra compiacevole che ella secondo la inclinatione et desiderio suo operasse et producesse. Et questo compiacimento o è amore o nasce d'amore.* Patrizi 1963, 110; translation modified from Patrizi 2003, 141.

34 Patrizi openly discusses the question of whether charity and love of God are inherent in human nature or whether they are religious, ideological, and normative constructions about how a human being should be. The way he distinguishes facts from values in his search for the essence of a human being is incompatible with the Christian doctrine of man made in the image and likeness of God and was therefore dangerous to express during the Counter-Reformation. This might be one of the reasons that *AF* was never published.

more harmonious; rather, man is described in terms of a blind willpower for self-preservation, which ultimately overrules all religious and moral intentions associated with Ficino's religious doctrine of man's immortal soul. Of course, one should not draw any definite conclusions from a small section in an unpublished treatise, but I will now provide further evidence for the thesis that the views expressed there can indeed be seen as symptomatic of a transformation in Patrizi's thought.

5.2.2 *Man: Just a Special Kind of Animal or Made in the Image and Likeness of God?*

By the year 1590, Patrizi was intending to complete his *Nova philosophia* with a part entitled "Pampsychia o De humana philosophia" ("All-Soul; or, On the Philosophy of Man"), which originally was meant to discuss the concept of Soul, including a theory of the return of the human immortal soul to God.[35] Patrizi, who was acquainted with Ficino's comprehensive theories of the immortal Soul as a knot of the universe and of man as the crown of God's Creation, could have easily passed them on unchanged.[36] But he experienced difficulties in reconciling these Christian and Neoplatonic views of his predecessor with new naturalistic conceptions of man.[37] As a result, he failed to formulate a completed theory about human nature from the perspective of its relationship with the harmonic cosmic body and soul. These methodological problems are reflected in the arrangements of Patrizi's texts: Ficino dealt with the human soul as an integral part of his view of the universe as a musical Creation, but Patrizi's ideas on the subject are scattered throughout his work. Whereas we have dealt with his ideas on the World-Soul as they are stated in the third part of his *Nova philosophia*, titled "Pampsychia", at 4.4.1, in this section I will focus on his theory of the human soul as formulated in the incomplete draft of *De humana philosophia*".[38]

Patrizi's inability to integrate his philosophy of man into his philosophy of the universe is not only due to a lack of understanding or time. The incomplete and sketchy character of Patrizi's *De humana philosophia* can be interpreted as illustrative of problems that emerge for a theory of the harmony of the human soul and body (*musica humana*) at the end of the sixteenth century. Patrizi is still convinced that philosophical and scientific truths are, in principle, indiscernible

35 Muccillo 1990, 281.

36 For Patrizi's discussion of Soul in the context of his philosophy of nature, see 4.4.1.

37 For Ficino's Platonic interpretation of man made in the image and likeness of God, see 3.2.1.

38 For a detailed description of the genesis of the manuscript, see Muccillo 1990, 281–289.

from theological ones.[39] Yet given that the doctrine of the immortal harmonic soul is a delicate subject in the context of the Italian Counter-Reformation, Patrizi experiences problems in formulating a theory of the essence of the human soul. The application of his new scientific and philological methods in the study of man interferes with Patrizi's ambition to distil from a great variety of—often contradictory—philosophical opinions the eternal truth about human nature, a truth which must also be congruent with Christian faith.[40]

In Ficino's view of the cosmos as a musical Creation, a human being was still at one with the universe. Cosmic order, in this view, was primarily linked with the metaphysical world rather than the natural world. Nature was still not a basis for knowledge but was embedded within a supernatural realm, a metaphysical cosmos of divine, immutable essences. As I have argued at 4.4, Patrizi's new view of the universe is influenced by traditional thought on world harmony, but he also became interested in the natural world in itself. In order to meet the scientific demands of his own time, he tried to untie the relation between the cosmos and music, as two objects of knowledge, on the one hand, and man, as the subject of knowledge, on the other. From the very beginning of *De humana philosophia*, his quest for the essence of a human being can also be characterized by the vacillation between a traditional, normative, religious philosophy of man and an early modern, descriptive, naturalistic one.

Like Ficino, Patrizi believes that the human soul is the determining form of a human being.[41] As a point of departure for his research into the nature of the human soul, in the 'Pampsychia' Patrizi criticizes the Aristotelian doctrine—formulated in *De anima* (*On the Soul*)—that 'life', as the principle of every kind of being, is also the principle of the human soul, because this view is difficult to reconcile with the Christian notion of the immortality of the human soul.[42] As Muccillo (1990, 290ff.) explains, Patrizi is convinced that this assumption is wrong, as it only defines an essence which men and animals have in common with plants. Patrizi involves himself here in one of the main controversies between Aristotelians and Platonists, concerning the principal organs and associated systems within man.[43] Aristotle claimed that the heart, the source of heat and life, ruled the entire human body and soul, whereas the Platonists, following *Tim.* 69–76, taught that three principal organs—heart, brain, and

39 Muccillo 1990, 288.

40 Patrizi 1975, 130.

41 For Ficino's theory of soul as form of the body, see 3.4.1.

42 For Aristotle's *De anima*, see Aristotle 1995b. For Patrizi's reception of Aristotle's *De anima*, see Muccillo 1990, 290–291, 295.

43 Siraisi 1990, 107.

liver—were each governed by a distinctive soul, that is to say an originating or ruling principle of a separate group of organs and functions.

In sharp contrast with the Aristotelians, Patrizi maintains that instead of looking for something as basic as life, which belongs to all living beings, the essence of human beings must be sought in that which distinguishes man from all other beings. The unique quality of men, "who are placed above animals", according to Patrizi, is that they are "moved by a desire for glory and also possess reason and intellect through their souls".[44]

Patrizi subdivides all being in the world into beings that only participate in the World-Soul and beings that also possess an individual soul. Beings endowed with a principle of motion, like planets, or with life, like plants, only participate in the World-Soul. Although they share some essential features with human beings, this does not mean that the World-Soul as the principle of life is also the principle of the human soul.

Having untied the knot between the World-Soul and the human soul, the principal constituent of Ficino's interpretation of man's participation in the harmony of the world, Patrizi begins to look for the specific principle of man that might distinguish him from all other living beings. Following Ficino's Neoplatonic account of the human soul, Patrizi argues that first of all the human soul can be characterized in terms of a circular process of descent and ascent in relation to an original source. Since man is created in the image and likeness of God, during his life on earth man must attempt to return to his Creator. The principle of man, then, is the fundamental circle of human life "through which we return once again to God, to make our dwelling in him".[45]

But in order to formulate a scientific philosophy of man, this normative religious definition of the human soul must be supplemented by a descriptive definition based on daily experience of mortal human life, since

> [the concept of] man [originates] from the opinion both of the wise and of most of the common people. Man cannot be understood solely in terms of his body nor solely in terms of his soul. Man is not just body, since he is not a dead body, nor is he soul alone without a dead body. Therefore, the agreement of practically everyone is that the following be asserted: man is made up of soul and body. . . . From all these arguments

44 *Homines vero, supra bruta, et gloriae desiderio tanguntur, et rationem, et intellectum possident, idque per animam.* NUP3, IV, 55v.

45 *Pampsychia. Per quam iterum ad Deum revertemur, ut in eo mansionem faciamus.* See Purnell 1978, 149.

> we hold the whole human being to be made up of mind, reason, soul, spirit, and body. Of these the last two are shared with animals and plants. The soul, placed in the middle [of the hierarchy of being as well as the list of cognitive faculties], is sometimes companion to these. Reason and mind are characteristic of human beings.[46]

A new philosophy of man, then, must be able to explain man in his dual manifestation of a body with a soul. Furthermore, it must be able to discuss a human being in learned metaphysical as well as in commonsense physical terms. Patrizi explains that since Christian-Neoplatonic thinkers were traditionally focused on the salvation of the human soul in their theories of man, they neglected the human body as an essential human feature for centuries. In order to remedy this narrow focus on the soul as the essence of man, Patrizi proposes to deal with the human body as an equivalent to the human soul in his new philosophy of man. Just like the universe, which consists of a World-Soul and a cosmic body, man is composed of different substances, ranging from the purely mental to the purely physical:

> Thus, a whole human being is made from eight essences, all different: that is, from intellect, *nous*, or mind; *logos* or *dianoia*; reason; *psyche*, soul; *pneuma*, spirit; heat, for there is no cold in a living body; fluid or humour, for there is nothing dry in a living body, because humour is not congealed in the erect body, that is, in the body proper to man, [and, finally, nature].[47] All these things live and are endowed with life. . . . The spirit seems to be the instrument of all these, heat the instrument of most of them; whereas the instruments of reason and intellect are the cognitive and appetitive powers.[48] But these powers must all be granted to the human soul, which, though it be one, has many powers and with these

46 *Homo ex sapientum plerorumque ex vulgi totius etiam sententia. Neque solum quod conspicitur corpus est neque sola est quae (non) conspicitur anima. Non solum corpus, quia non est cadaver. Neque sola est anima sine cadavere. Consensus igitur fere omnium in id venit ut asseratur. Hominem ex anima, et corpore constare. . . . Ex his omnibus colligimus hominem integrum constare, Mente, Ratione, Anima, spiritu, corpore. Quorum duo postrema cum brutis et plantis sunt communia. Anima in medio sita, aliquando illis fit comes. Ratio et mens propria sunt hominis.* DHP, 2^{r}, 3^{r}–3^{v}; Muccillo 1990, 291.

47 Patrizi forgets the category 'nature' in his enumeration, but from the context of the quotation it is clear that this must be the eighth category in his list.

48 For Ficino's theory of the virtues and cognitive powers of the human soul, see 3.4.1.

> powers many actions of the same kind which must all be individually treated in the order proper to this knowledge.[49]

From this passage emerges a view of man as microcosm that reflects the transformations in Patrizi's thinking about the macrocosm (see 4.4.2). Man participates in vegetable, animal, and human life. Around the human soul a body is constructed, in the same way in which all other souls in the universe are made up of body and soul.[50] Heat is almost identical with soul and is represented as the principle responsible for all cosmic events: in man as well as in the universe, heat produces life and death, rebirth and regeneration.[51]

At first sight, in defining the human soul as the true essence of a human being, because it is indivisible and independent of the other essences, Patrizi seems to pass down traditional Christian-Neoplatonic ideas unchanged. Unlike his predecessors, however, Patrizi argues that since man cannot exist during his life on Earth without the other seven essences, all characterized by divisibility and extension in space, they must be dealt with as equal to the category Soul. In order to explain the communication between soul and body, Patrizi borrows Ficino's concept of spirit, which contains something of all eight categories enumerated above.[52]

Even more than Ficino, Patrizi is interested in human physiology in general and especially in the interaction between body and soul. In this context he investigates the possibility of defining the essence of man inductively in strictly natural philosophical terms. He tries to reduce man to the natural elements of which he consists: man's body exists in space and is composed of fluid matter which is susceptible to heat and light. As in his new philosophy of

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49 *Itaque homo integer octo constat omnibus inter se diversis essentiis. Intellectu, νῷ, seu mente, λόγῳ, seu διανοίᾳ, ratione, φυχῇ, anima, πνεύματι, spiritu, calore, nam frigus nullum in vivente corpore. Humore, nam siccum nihil in vivente corpore quod non sit concretus humor, corpore erecto scilicet et proprio hominis. Haec omnia, vivunt et vita sunt praedita. . . . Horum omnium videtur spiritus esse instrumentum, plerorumque instrumentum calor, rationis et intellectionis instrumenta sunt cognitrices et appettitrices vires. Sed sunt haec omnia humanae animae tribuenda quae una cum sit plures habet vires, et viribus plures actiones generis eiusdem quae omnia sunt singillatim pertractanda ordine huic scientiae proprio.* DHP, 2^{r}, 3^{r}–3^{v}; Muccillo 1990, 291–292.

50 *DHP*, 71^{r}.

51 It is highly likely that this explanation is derived from Telesio's *De rerum natura iuxta propria principia* (*On the Nature of Things according to Their Own Principles*; 1586). For the relationship between Telesio and Patrizi, see Fiorentino 1872; and Schuhmann 1988. For Patrizi's critique of Telesio, see Telesio 1981, 463–474.

52 For Ficino's theory of the human spirit, see 3.4.2 and 3.5.1.

the universe, Patrizi here uses his four new elements as universal principles to explain man in terms of the foundation of all specific existence in the world.[53]

Within this naturalistic description of man, Patrizi uses the Timaean view of the three principal organs. According to this view, the brain, the heart, and the liver are the main centres of life in the human body. Spirit guarantees the interaction between the three principal organs.[54] As an instrument of the soul, moreover, spirit is operative in the vital functions of the human body:

> Thus, this function is left to the soul and is proper to it. Its spirit, heat, humour, and solid body are its instruments. The soul carrying the spirit and heat within itself into the fluid of the seed shapes it for various purposes and gives form to its parts. First of all, [it gives form to] the main organs: liver, heart, and brain.[55] Then from these, which are, as it were, the sources of the others, it gives [form] to the rest, all gradually at one time. The soul, through the spirit and through heat, does the following to the humours and seeds of the blood: it (1) gives life to, (2) fashions, and (3) forms them individually, (4) joins or puts them in their places, (5) joins them in the same places, (6) unifies them as joined, and (7) out of these unities makes a human being.[56]

Despite his defence of the Timaean doctrine of the three principal organs of a human being, Patrizi leaves aside Ficino's discussion of a model of hearing based on a miraculous network of spirits inside the human body.[57] Though Patrizi clearly is informed about this theory, he does not address it in *De humana philosophia*.

Given that this definition of a living being is also valid for animals, Patrizi subsequently tries to specify what makes a human being different. In this part of the *De humana philosophia* he resumes an important theme of the *Nova*

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53 For Patrizi's four elemental principles, see 4.4.2.

54 Siraisi 1990, 107.

55 See 3.4.1, esp. fig. 3.2.

56 *Animae igitur hoc munus relinquitur, proprium ipsius. Cuius et spiritus, et calor, et humor, et solidum corpus est instrumentum. Anima spiritum, caloremque secum in humorem seminum secum ferens, eum in varia effingit atque efformat partes. Primo principes, hepar, cor, cerebrum. Deinde ab his tamque aliarum fontibus reliquas, uno tempore paulatim omnes. Anima, per spiritum, perque calorem, humores sanguinisque seminales. 1° vivificat, 2° effingit, 3° efformat singula 4° coniungit sive suis apponit locis 5° in iisdem ea connectit. 6° connexa unit, 7° ex unitis unum facit hominem.* DHP, 4r; Muccillo 1990, 292.

57 For the development of the theory of this so-called *rete mirabile* (marvellous net), see Siraisi 1990, 91, 99. For Ficino's conception of this network, see 3.4.2, esp. fig. 3.5.

philosophia: to discuss man as an integral part of nature but to do so without contradicting church doctrine. According to Genesis 1:27, man is made in the image and likeness of God, and therefore, the immortal human soul, which resembles its Creator most perfectly, must be privileged in any philosophy of man.[58] Both Ficino and the church set great store on preserving an unbridgeable gap between man and animal in the chain of being (see 4.4.3). It is of the utmost importance to them that in the hierarchy of being humble animals bear no resemblance to God whatsoever.

With regard to the essence of man, Ficino had interpreted the *Timaeus* through the lens of his Christian faith. He believed that the immortal soul, which was imbued with the archetypal harmonic design of Creation, was the essential property of a human being, present as a kind of divine spark in all animated principal parts of the human body. In this context, the divinely ordained tasks to become co-creator of one's own harmonic nature and to penetrate the harmonic master plan of Creation became the purpose of human life. By contrast, Patrizi seems to have doubts about whether this kind of normative thought will ultimately lead to an understanding of the essence of a human being, that which distinguishes him from all other creatures.

Given the natural philosophical aims of his *Nova philosophia* and *De humana philosophia* and his love for scientific truth, Patrizi has trouble defending the doctrine that the animated principal parts of the human body are entirely different from those of an animal. Therefore, he decides to argue for the opposite view, comparing the rational and irrational souls of both man and animal. On empirical grounds he is compelled to admit that the boundaries between man and animal as regards the rational soul are blurred. According to Patrizi, not only are animals more rational, but also men are more irrational, than traditional belief holds.

On the basis of his comparison, he concludes that in his behaviour, feelings, and thought, man proves to be less driven by rational thoughts and a desire to reunite with his divine origin. Instead of making the re-establishment of the original harmonic design of his immortal soul his main goal in life, man is often led by less noble, 'animal' urges. So, with regard to the rational soul in living beings, Patrizi comes to the following conclusion:

> Therefore, in my *Nova philosophia*,[59] animals and plants are also shaped by rational thinking, through their own and inherent faculty of reason,

58 For Ficino's reception of this theory, see 3.2.1.

59 Presumably, Patrizi refers here to *NUP*3, V: "De Animis Irrationalibus", where he discusses the concept of the rational and the irrational soul and concludes that animals also have a rational soul. For further discussion of this topic, see 4.4.3.

> and they are therefore rational creatures, not, as almost all philosophers maintain, irrational. They call this reason 'nature' or 'physic', not because [animals] are not formed by reason, or because they do not live by reason, or because they are not moved by reason, or because they do not act by reason, or because they do not say with speech by reason everything that is proper to themselves and their species, but because they are not created with such properties as man, who is created with a human soul and lives, moves, acts, and uses speech. For man has retained this prerogative [of being rational] to himself, so that he alone seems to be, and is held to be, a *logikos*, that is, a rational being. Just as the [people of the] Greek nation called themselves alone *Hellenes* [i.e., civilized] and all the others barbarians. And the Hebrews called themselves the chosen people and the others the reprobates. Therefore, [the concept of] man is made up from the reason of his own soul.[60]

In this answer to the question of whether rationality is the distinguishing quality of human nature, Patrizi argues that traditional definitions of the rational essence of man have always had a cultural and ideological (i.e., a conventional rather than a natural) component. Ficino, who had been mainly interested in demonstrating that the World-Soul and the human soul had a similar harmonic design, had been satisfied with the definition of man as a unique rational being. Once he had demonstrated man's rationality, he went on to decipher the harmonic structure of the human soul in terms of the numbers, ratios, and proportions of the cosmic soul without further questioning conventional and ideological aspects of the cultural framework of a *prisca theologia*. As a corrective on Ficino (3.2.1.), in his ambition to formulate a new philosophy of man Patrizi aims at separating these ideological, normative components from descriptive, natural ones. He concludes that arguing for man's right to rule over other living beings because of his unique rational soul is a normative religious position with no connection to a new human philosophy.

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60 *Ideo in nova philosophia bruta quoque et plantae, ratione formantur ἰδίῳ καὶ οἰκείῳ λόγῳ suntque ideo λογικά non ut omnes fere philosophi, ἄλογα. Hanc rationem, Naturam φύσιν nuncupant. Non quia ratione non formentur, vel quia ratione non vivant vel quia ratione non moveantur, vel quia ratione non agant, vel quia ratione cum oratione non loquantur omnia sibi, suaeque speciei propria sed quia non talibus, qualibus homo ab humana anima, formatur, vivat moveatur, agat, oratione utatur. Hanc nam homo sibi retinuit prerogatiuam, ut sibi solus, λογικός rationalis videatur et placeat. Sicuti Greca natio, se solam Ἕλληνας reliquas omnes barbaras appelavit. Et Hebraei se populum electum, alios reprobos. Homo igitur propriae suae animae ratione est constitutus.* DHP, 4^{v}; Muccillo 1990, 293.

In his search for the essence of man, Patrizi, therefore, changes perspective: instead of a definition in religious or metaphysical terms, he aims at defining the difference between man and all other living beings in natural philosophical terms. In fact, as Muccillo (1990, 293ff.) explains, he is trying to define the essence of man in line with the point of departure formulated in the "Pancosmia", where he argues that in a philosophy of nature 'space' should be the first principle, followed logically by the activities of nature, which in turn are prior to the actions and passions of a human being.[61] Within this naturalistic perspective, Patrizi formulates his research question again:

> And in which of its qualities does the human soul differ from those of animals and plants? Not surprisingly, in the particular qualities that it does not have in common with them. These qualities are not imagination or memory or common sense or one of the senses or the desires for food and drink or sex and lust or sleep or waking or locomotion or spirit or desire or the love shown between parents and children or pleasure or, finally, pain. All of which animals have in common with human beings. Or could it be the power of reasoning that is proper to man? But even wild animals reason and thus are logical beings; Plutarch and Porphyry showed this exhaustively.[62]

On the basis of observation of nature as well as authority, Patrizi can only conclude that man and animal have much in common: imagination, memory, common sense, five senses, some of their basic needs, passions such as pleasure and pain, and even reason. In this questioning of the difference between man and animal, he implies an alternative definition of the essence of man: man can be defined best in a naturalistic way as a special kind of animal. Although this goes against the grain of the Platonic tradition as well as Christian doctrine, Patrizi is convinced that a philosopher should always respect his genuine findings irrespective of their consequences. Ultimately, he believes that "the philosopher does not have to be shocked at these things if they are true; but if

61 *NUP*4, I, 65^{v}.

62 *At quibusnam dotibus anima humana a brutalibus, aut plantalibus animis differens est? Propriis nimirum suis dotibus quas cum illis non habet communes. Eae sunt, non phantasia, non memoria non sensus communis, non sensus singuli, non appetitiones alimentorum, potus non coitus venerisque non somni, non vigiliae non motus locales, non θυμός, non ἐπιθυμία, non philostorgia, erga liberos non voluptas, non dolor. Quae omnibus brutis, cum homine sunt communia. An vero λογισμός ratiocinium hominis est proprius? At et bruta ratiocinantur, λογίζονται ostendunt id latissime Plutarchus et Porphyrius.* DHP, 4^{v}, 5^{r}; Muccillo 1990, 293–294.

they are false, they are to be entirely rejected".[63] Patrizi is not afraid to elevate the dignity of animals, thus causing a corresponding reformulation of the dignity of human beings.

In his defence of this view of man as a special kind of animal, Patrizi subsequently asks whether there are any irrational souls.[64] He denies it, though he admits that many philosophers and theologians assert that there are such souls, in human beings as well as in animals. The Greek term 'irrational' has three meanings: lacking speech, lacking reason, and contrary to the rational order of nature. Observation of the life of animals in nature leads to the conclusion that they satisfy all three conditions of rationality. They are, therefore, rational. Patrizi argues that this conclusion is fully consistent with the doctrine of the church, because the Bible says that animals lack intellect, which is different from reason. The bridging of the gap between man and animal in the hierarchy of being provides incentive for an investigation into the musical expressions of animals, which are equally capable of expressing cosmic harmonic rational law, as I will discuss below at 5.3.1.

Despite the seemingly naturalistic tenor of large parts of the *De humana philosophia*, Patrizi follows Ficino in arguing that the immortal human soul ultimately is the essence of man, even if this subject perhaps does not deserve a place in a strictly natural philosophy of man. In order to defend his position in the Aristotle-Plato controversy regarding the subject matter of a philosophy of man, Patrizi uses the question of whether man's soul or his body was created first in his argument for the primacy of the immortal human soul. Here he argues fully in line with Ficino's narrative of a *prisca theologia*:[65]

> There is a great disagreement between philosophers and theologians about whether the soul exists before the body or after it or is made at the same time as the body. Hermes, Zoroaster, Pythagoras, and Plato and his whole school say that it was created first. Aristotle and the physicians[66] [say] that it comes into the body after, and these physicians estimate that [the soul] enters [the embryo] a couple of days after [its conception].[67]

63 *Sed philosopho non sunt haec exhorrenda, si vera sint; sin false, penitus sunt abolenda.* *NUP*3, V, 58[r].

64 *NUP*3, V, 57[r].

65 For this controversy, see Siraisi 1990, 107–114.

66 Siraisi 1990, 110–113. Patrizi refers here to physicians such as Hippocrates and Galen. For Ficino's discussion of Galen, see 3.5.1.

67 *Magna est inter philosophos et theologos dissensio an anima ante corpus sit, an post corpus an eodem quo corpus tempore fiat. Hermes, Zoroaster, Pythagoras, Plato, tota eius schola prefuisse dicunt. Aristoteles et medici post venire in corpus et medici iidem dierum spaciis adventum hunc metiuntur.* *DHP*, 10[v]; Muccillo 1990, 295.

Patrizi confronts all the theories maintaining the corporeality of the human soul or the simultaneity of the Creation of the human body and soul, in order to arrive at the Neoplatonic doctrine of the ontological priority of the perfect, harmonic, and immortal human soul. Just like Ficino before him, he explains that the human soul, which can be characterized in terms of unity, perfect rational form, and thus harmony, forgets its original state during its incarnation in a human body:[68]

> But because of the nature of the soul, it is also true that the separation of the soul from the body is natural and thus it returns [after earthly life] to its own nature. This very separation is not painful to the soul but to the body; it is pleasant and desirable to the soul. The resurrection of bodies, moreover, is pleasant to both body and soul, since the body will be returned pure and glorified, and it truly pertains to the happiness of the human being. And in a quotation of Saint Paul cited from 2 Corinthians 5:[69] "For also those of us who are mourning in this tabernacle are weighed down, because we do not wish to be undressed but clothed until that which is mortal is freed from life". He [i.e., Christ] does this for us. For the soul is weighed down by our body and sins in its company.[70]

Even though he is quoting from the Bible in this passage, it seems evident that Patrizi is not referring to the theological concept of the human soul as defiled by original sin but to the Neoplatonic concept of an essentially good, pure, and harmonic soul, which is in itself incapable of committing sins.[71]

In the context of the theological discussion of the essence of man included in the *De humana philosophia*, Patrizi refers implicitly to Ficino's famous doctrine of the immortality of the soul: "the soul is not a natural, but a super-

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68 For Ficino's account of the original state or the 'true home' of the human soul, see 3.3.2.

69 2 Corinthians 5:1–5, which compares the mortal body to the perfect eternal body made for us by God himself in the hereafter.

70 *Sed propter animae naturam et verum est separatione*[*m*] *animae a corpore esse naturalem, ergo ipsa in suam naturam redit. Eadem separatione non animae sed corpori est dolorifica, animae iucunda et optabilis; et resurrectio mortuorum, quia corpus purum et glorificatum redibitur, est utrique iucunda et pertinet vere ad hominis felicitatem. Et locus Pauli citatus ex c. 5 ad Corint.*[s] *2ae.*[70] *Nam et qui sumus in hoc tabernaculo ingemiscimus gravati, eo quod nolumus expoliari sed supervestiri, donec absorbeatur quod mortale est a vita; pro nobis facit. Anima enim corpore gravatur, et eius societate peccat.* DHP, 11[v]; Muccillo 1990, 297.

71 DHP, 12[r]. Patrizi does not endorse the doctrine of original or ancestral sin propounded by the Church Father Origen (184–254). For Renaissance discussion of Origen, see Wind 1954; and Walker 1959.

natural form".[72] Patrizi adopts the Christian interpretation of the Neoplatonic idea, prominent in the philosophy of his predecessor, that the human soul suffers imprisonment after incarnation in a body. The migration of a soul from its true home in Heaven gives rise to homesickness during this life on Earth and urges man to re-establish his original state of unity and harmony through the contrary movement of an ascent. Hence, during earthly life, a human soul should try its best to recollect memories of the heavenly paradise whence it originates and where, after a pious life, it will return.

In contrast with Ficino, Patrizi explicitly refutes all literal theories about reincarnation as a kind of transmigration of the soul.[73] In this discussion, he opposes Origen as misled by Pythagoras and Plato:

> We also reject his [i.e., Origen's] mistakes.[74] They were not that he claimed that the soul was created before the body, but that he infers from this that one and the same soul repeatedly falls [i.e., reincarnates in different bodies]. . . . What the aforesaid dogma infers, it infers absurdly, [namely,] the transmigration of the soul. Nor does it necessarily follow from the argument that the soul was created before the body. But if Origen, Plato, or Pythagoras said so, they have, in this instance, made a philosophical claim without a sound rational basis. For who would agree with the following syllogism: souls exist before bodies; therefore, they migrate from one body into [other] bodies?[75]

Hence, following Christian doctrine, soul can be defined only as an inexchangeable essence of an individual human being.

In conclusion, unlike Ficino, Patrizi deals with the World-Soul and the human soul in different treatises. Patrizi's relegation of the discussion of man to a separate treatise is an example of a major transformation in the

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72 *Neque anima est forma naturalis sed supernaturalis.* DHP, 12[r].

73 For Ficino's account of the transmigration of the soul, see 3.3.2.

74 Origen also believed in the doctrine of the reincarnation of the human soul. He is in fact one of the founding fathers of Christian Gnosticism, which searched for deeper wisdom in religious truths. In Gnostic circles the belief in reincarnation continued, even after it was forbidden during the Council of Constantinople in 553. See Lieske 1938, 38–45.

75 *Cuius errores etiam nos respuimus, qui fuerunt non quod anima ante corpus sit creata, sed quod inde asserit, ut in propria rep.*[a] *anima cadere. . . . Sed quae contra p*[m]*. dogma infert, absurde infert μετεμψύχωσιν. Neque n. necesse est id sequi, quia anima sit corpore prius facta. Quod si Origenes, aut Plato aut Pythagoras id dixerunt, hac in re sine recta ratione sunt philosophati. Quis enim his syllog.*[s]*? Animae ante corpora existunt; ergo de corpore in corpora migrant.* DHP, 12[v]; Muccillo 1990, 299.

traditional doctrine of the harmony of the spheres. Whereas in the tradition of the harmony of the spheres the cosmos and man were hitherto conceived of as two similar creatures, which could be described in terms of the same underlying harmonic archetype, Patrizi questions this belief without any intention of discarding it completely. It is highly likely that the huge difficulties implied in formulating a new philosophical language to describe the essence of a human being are the main reason that the manuscript of the *De humana philosophia* remained in draft.

In sharp contrast with Ficino, Patrizi abolished the mental habit of discussing the structure of the human body, soul, and life cycle in terms of the numerical ratios that produce harmonies both in earthly music and in the cosmos. Furthermore, by removing theories of the transmigration of souls from his discussion of man, Patrizi breaks with the practice of reading the Timaean cosmogony myth through the myth of Er, which had experienced a genuine revival in Ficino's philosophy. As a consequence, a spiritual journey through the heavenly spheres can no longer count as the essence of a human life. These stories are transferred to the subjective realm of values, whereas Patrizi in his new human philosophy tries to focus on the realm of objective facts. However, in view of the Counter-Reformation and presumably also of his own Christian belief, he could read these facts only through the lens of the Bible.

5.2.3 *Changes in the Relationship between the Intellect and the Sense of Hearing*

At 2.4.2, I argued that musical judgement in Ficino's *Compendium* had been guided by the question of how to define the spaces between all the pitches in a tuning system.[76] In line with the Pythagorean and Platonic tradition, in this treatise mathematical demonstration was regarded as more objective than a judgement based on the fallible sense of hearing. In his discussion of music as a science of the element air in the *Nova philosophia*, Patrizi considers the theory stated at *Tim.* 79c–80b that the immediate cause of sound is compression of air emanating from a voice or an instrument pushing the air around it and eventually striking the cartilages of the ear.[77] According to Plato and Ficino, the object of this felt blow was defined as sound. In contrast with these predecessors, however, Patrizi maintains that the subjective experience of hearing such a blow must be defined as sound, not the object of the blow that has occasioned it.

76 See 2.4.2.

77 See 4.3.2.

In Ficino's extensive discussion of the faculty of hearing, the object under consideration—how to define musical intervals—was integrated into an all-embracing discussion of the impact of these intervals on the human soul.[78] He combined the Timaean explanation of the sense of hearing with ideas from outside the strict Pythagorean mathematical jargon of the quadrivial science of music. For Ficino, musical judgements based on the sense of hearing functioned as a necessary but preliminary procedure for the reasoning of our intellect.[79] In order to create a hierarchical order of human cognitive faculties, he identified intellect and reason with truth and then contrasted these higher cognitive faculties with the sense of hearing, which he conceived of as liable to error. Having placed musical judgement at the centre of this hierarchy, Ficino came to the conclusion that our ears will establish a certain distance between sounds only as an imagined proportion between 'sensible numbers', which is then rectified by our intellect to the true proportion between 'judging numbers'.[80] Patrizi discussed the question of how to define the musical intervals by using Aristoxenian terminology.[81] Here we saw that Patrizi, in contrast with Ficino, no longer believed that the sense of hearing is of the same substance as sound, its object.

In his *De humana philosophia*, Patrizi again addresses the hierarchy of human cognitive faculties. Here, he studies them from the perspective of the principal organs of a human being and their associated anatomical and physiological systems. He starts this naturalistic account with a classification of the lowest category of the passions of the human mind, roughly corresponding to the affects or emotions.[82] He explains that pleasure and pain are the two extreme passions of the human soul, which demarcate human emotional life at its most basic level. Ficino had discussed the passions from a normative point of view as potentially disturbing powers of the human soul, to be tempered in the process of spiritual edification. In sharp contrast, Patrizi discusses the passions in a descriptive and naturalistic way. He does not discuss the ethical topic of how man should learn to control his passions and become a more rational and balanced creature. As a consequence, the theory of musical *ethos*—of how music can be used to temper one's emotional life—is not addressed in his philosophical discussion of man.

78 For Ficino's theory of sound and hearing, see 3.4.2.

79 For the changing functions of sense and reason in Italian music theory of the late sixteenth century, see Fend 1991.

80 See 2.4.1.

81 See 4.3.2.

82 *DHP*, 71^{r}. Muccillo 1990, 305.

Patrizi explains that the basic needs for food and for movement are connected with sensation, which is the first form of awareness in animals and men. As for the five senses, according to Patrizi there are no essential differences between man and animal: in anatomical and physiological terms, they are similar.[83] In the hierarchy of the cognitive faculties, man and animal share all faculties up to and including imagination and reason. The naturalistic discussion of the five senses brings about a functional reduction, which leaves no room for a metaphysical discussion of the inner senses. The inner sense of hearing which played such an important role in Ficino's explanation of obtaining knowledge and tempering the soul is not addressed here. In sharp contrast with his predecessor, Patrizi's explanation stresses the 'normal' external sense of hearing in its role in the preservation of the individual:

> Lest the animal perish, the external senses are given as leaders and helpers: the sense of seeing is given so that an individual may recognize his food; smell and taste, so that he can distinguish them; the sense of touch is given for the same purpose; and [finally] the sense of hearing is given so that man will hear it when something harmful is going to happen.[84]

After his discussion of the five senses which man and animal have in common, Patrizi turns to the cognitive faculties. Men and animals have the cognitive faculties up to and including sense and reason in common, but some of them manifest themselves only in men. In his treatment of these faculties, Patrizi follows a traditional interpretation of Aristotle's *De anima* in taking the faculties of the mind as housed in the four ventricles of the brain, as depicted in a late fifteenth-century Latin edition of the treatise (fig. 5.1).[85] In this illustration, four regions of the brain are labelled *sensus communis* (the common sense, a power bringing together the input of the senses); *virtus cogitativa* (the cogitative power, which is not the same thing as reason but is similar to the faculty

83 It is highly likely that this explanation is derived from Telesio's *De rerum natura iuxta propria principia* VII.xviii–xxix.

84 *. . . ne animal periret sensus externi dati ut duces et adiutores visum ut alimenta cognosceret, olfa*[*c*]*tum ac gustum ut ea dignosceret, tactu ad idem adiuvaretur, auditu percipient si quid noxium occurreret.* DHP, 71^{v}. Muccillo 1990, 305.

85 From the fourth century AD and for several hundred years to follow, the faculties of the mind were thought to be housed in the ventricles of the brain. This, a fifteenth-century illustration, was designed to illustrate the 1494 edition of Aristotle's *De anima* (reprinted with kind permission of the Incunabula Collection at the National Library of Medicine, Bethesda, Maryland).

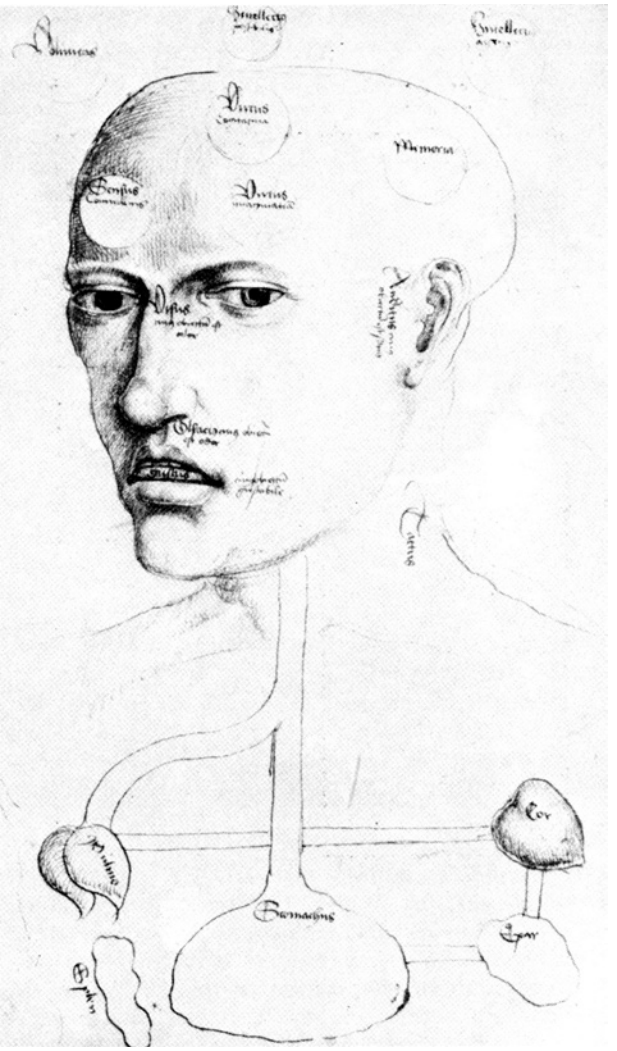

FIGURE 5.1 *The sense organs and localization in the brain of the powers of the mind. From the 1494 Latin edition of Aristotle's* De anima.

of judgement); *virtus imaginativa* (the power of imagination or fantasy); and *memoria* (the power of memory).[86] Patrizi loosely follows this order.

First of all, Patrizi enumerates common sense as one of these higher cognitive faculties, which has the function of filtering the various types of sensory input into something which can be processed by some of the higher cognitive

86 Siraisi 1990, 82.

faculties. After common sense, the faculty of judgement is given for the very same purpose:

> Yet since the sensory objects of the different senses vary, another interior sense is given within [the brain] so that it can recognize the differences in the sensory objects. This sense we define as the faculty of judgement.[87]

As soon as the content of the sensory input is gathered and judged, the resulting cognitive substance is processed inside the faculties of fantasy and imagination:

> Above the faculty of judgement there is another [faculty], the so-called fantasy [i.e., imagination], which has as its objects the shape, size, number, movement, and rest [of the objects] which are perceived by the [five] senses and are said to be common [sensory] properties. Yet when they are received, this faculty of the fantasy by its actions imagines them in different ways. For this reason it is called the *eidolopoetic* ('image-making') [faculty] by the Pythagoreans: it forms, reforms, and transforms, adding and reducing, and moving with various movements and conditions. [Let us now] see whether there is a cognitive faculty other than these. These three precognitive faculties [*alogoi gnoseis*] . . . are even common to animals, and they alone do not listen to reason and do not know what they feel and perceive what they are, and they cannot understand their essence.[88]

Patrizi refers to the Pythagorean doctrine of image making in the faculty of the imagination, but unlike Ficino (see 3.4.2.) he does not examine the function of these images in the transfer of knowledge through, for example, the sense of normal and inner hearing. The faculty of memory is not dealt with in this enu-

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87 *Sed quia varia sunt horum obiecta, sensus alius interior datus, ut obiectorum differentias cognosceret. Iudicium nos hunc sensum dicimus.* DHP, 72r. Muccillo 1990, 306.

88 *. . . supra hunc alius est phantasia dictus cuius obiecta sunt figura moles numerus, motus, status qui per sensus alios percipiuntur et dicata sunt communia obiecta, sed recepta, ea phantasia suis actionibus varia figurat. Ideo dicta est εἰδωλοποιητική a Pythagoreis quae format reformat transformat, addens minuens, et variis motibus ac statibus agitans. Vide an alia quoque praeter haec cognoscat. Haec tres γνώσεις ἄλογοι . . . et brutis etiam communes, et solae rationem non audiunt et quae sentiunt, quid sint non percipiunt neque essentiam eorum queunt colligere.* DHP, 72r, ed. Muccillo 1990, 306.

meration either. Patrizi continues his enumeration with a definition of the cogitative faculty of *doxa* which is not the same faculty as the cogitative power:

> Above the faculty of the imagination there is the faculty of the formation of a judgement [*doxa*] and its proper function is to understand the essence of things that can be sensed and it is proper to man, [while] the animals lack it. It knows essences but it does not perceive their causes, and it is not joined to a part of the body nor does it need any instrument of the body.[89]

In his theory of forms or ideas, Plato defined *doxa* as pointed at a belief, unrelated to reason, that resided in the unreasoning, lower parts of the soul.[90] As such, it was directed at the sensible realm of physical objects and not at the intelligible realm of form or ideas. Yet despite his anti-Aristotelianism, Patrizi uses, not as a lower cognitive faculty associated with transience and fallibility but as a higher one whose value is in its practicality and common usage. He defines *doxa* as an important faculty in the process of knowledge acquisition, whose "proper function is to understand the essence of things". This is a clear indication of the change in the relationship between the intellect and the senses and the related faculties of the mind, in which the latter gain ground.

Patrizi then continues his discussion with the highest cognitive faculties. In order to properly know an object which is presented to one of the senses in the first place, one must know not only the essence of this object but also the cause of this essence. For this purpose man uses his reason:

> Above [the ability to form an opinion] is 'soul', 'reason', 'reasoning', 'reasonable'; its function is to connect one term with another term. Hence, it is called discursive [reason]. Its end is [the understanding of] substances, attributes, causes, and effects. It unites all those things pertaining to the senses, to the mind, and to what is in between, and it knows the 'what and why'. In short, it is a dynamic kind of understanding. Above this faculty of discursive reasoning, *nous* (or mind or intellect) is situated, the source and origin and supreme leader of the whole cognitive process and the cause of all beautiful things in the soul. Yet [in contrast with the

89 *Supra phantasmiam est δόξα p^{a} λογική eius proprium munus est sensibilium essentiam cognoscere propria est hominis, bruta ea carent. Cognoscit quidem essentias, sed earum causas non percipit, neque est illi parti corporis addita, neque ullo eget eius instrumento.* DHP, 72^{r}, ed. Muccillo 1990, 306.

90 For a discussion of the possible translations of *doxa* by Plato, see Plato 1990 69–70.

> reason] the intellect knows the measures [of sensory objects] at a single glance and changelessly; and it is the greatest part of the soul, and its form is one and the highest. Through it, we are swept up to things above, and as Hermes [Trismegistus] says, we cross over into God.[91]

Strictly speaking, the hierarchical description of the cognitive faculties ends with Patrizi's discussion of the dynamic faculty of discursive reason, which, since it is able to connect causes and effects, must also be able to analyse the first cause of the essences of sensory objects. Reason is able to intuit the first cause, but ultimately man is given a soul, mind, and intellect to know that the sensory world is just a reflection of a higher intelligible realm of eternal forms. The soul possesses an innate faculty by which "the cause of all beautiful things" can be detected.

In conclusion, even though Patrizi started his discussion of the sense of hearing in a very Aristotelian naturalistic and inductive way, stressing that hearing music is only a specific kind of hearing in general, the final pages of the unfinished manuscript of the *De humana philosophia* seem to suggest that he intended to conclude the text in a Neoplatonic deductive way, leaving the possibility open that the human soul possesses innate musical and harmonic forms, which will be recollected in contact with music as a beautiful object. Again, as regards the hierarchy between the sense of hearing and reason, Patrizi offers an ambiguous view: whereas he argued for the primacy of the sense of hearing in the context of a theory of tuning and temperament, he argues for the primacy of the reason in the context of his human philosophy.

5.3 A Transformation of Music from Mathematical Science into Rhetorical Art

In Patrizi's *Della poetica* we find frequent reference to the famous doctrine of the music of the spheres. Yet in sharp contrast with Ficino's account

91 *Supra hanc est διάνοια, λόγος, λογισμός, λογιστικόν; eius opus est motu quasi transire a termino ad terminum alium. Inde dicta discursus. Termini sunt substantiae, accidentia, causae, effectus unit ea omnia sensibilium, mentalium medianorum et novit τὸ ὅτι, καὶ διότι et summatim est νόησις μεταβατική, supra διάνοιαν ὁ νοῦς est Mens, Intellectus, fons et origo et dux omnis cognitionis καὶ πάντων τῶν ἐν ψυχῇ καλῶν αἴτιος cognoscit autem ἀμεταβάτως τοὺς ὅρους ἁπλῆ ἐπιβολή et est maxima animae pars et eius forma una ac summa. Per quam superis insymur, et ut Hermes ait, in Deum transimus.*DHP, 72^{r}, ed. Muccillo 1990, 306.

of world harmony as an eternal and current topic, Patrizi refers to it in a historicizing way:

> And therefore Pythagoras and his auditors called philosophy 'the great music', and Plato similarly, since it had the power to bring the human soul into concord with itself and to arrange all its different parts so that they can perform their specific task, in such a way that all resulted in a marvellous consonance in contemplating, in speaking, and in the performance of acts pertaining to a good life. Thus, it came about that they believed and taught that the human soul is composed of harmony, like the World-Soul, which on the basis of its essence and powers brings into harmony the whole world that is governed by it and makes the motions of the heavens produce sounds, which are harmonious and marvellously concordant.[92]

From this historicizing tone we may already deduce that the concept of world harmony in the context of Patrizi's poetics and aesthetics of music has transformed into something fundamentally different from Ficino's belief in the real existence of the music of the spheres. In contrast to his predecessor, Patrizi seems to use the doctrine in this context predominantly in a metaphorical way. Though the obvious connection between heavenly and earthly music is broken, and the latter consequently is no longer imbued with supernatural power, this does not mean that for Patrizi music lost its magical influence on the human soul. Yet in light of his dismissal of a literal belief in the music of the spheres, Patrizi must formulate a new theory explaining music's magic. For this purpose he transforms music from a mathematical science into a rhetorical art. Underlying this new theory is Patrizi's view of the musical foundations of language.

92 *E quindi è che Pitagora e gli uditori suoi la filosofia chiamassero: musica la grande, e Platone similmente, sì come quella che possente era l'animo humano a concordare con se stesso e a disporre ogni sua parte a fare il proprio uffizzio suo, in guisa che di tutte ne riusciva una maravigliosa consonanza, così nel contemplare, come nel favellare, e nell'operare azioni a buona vita pertinenti. Onde fu ch'essi crederono e insegnarono l'animo humano essere composto d'harmonia, a simiglianza dell'anima mondana, la quale per ragioni dell'essenze e delle potenze sue tutto il mondo da lei governato rendea conforme, e i moti de'cieli facea render suoni armoniosi e di mirabile concento.* DP, D14; Patrizi 1969–1971, 1 (1969): 277–278.

5.3.1 *The Musical Foundations of Human and Animal Speech*

In contrast to Ficino, Patrizi declares that in order to discover this archetypal harmonic language of Creation, it is better to observe the utterances of animals in nature than earthly music made by deceptive men. In his opinion, animal speech possesses a residue of the creative Word of God. Their musical speech can help us to retrieve a kind of paradisiacal knowledge, which human beings lost after they built the Tower of Babel.[93] This archetypal language, which is hidden in all the different languages of man, must be revived in order to create a sound basis for poetry and music. Hence, Patrizi is searching for a natural archetypal musical language, which is supposed to form the basis for all conventional linguistic systems.

Just like his sixteenth-century colleagues, Patrizi discusses language in the context of his discussion of the soul. He firmly believes that nature is the book of God, written in the archetypal harmonic language of Creation. Furthermore, he believes that the human soul is imprinted with the grammar of this language. In his *Dieci dialoghi della historia* (*Ten Dialogues about History*; 1560), for example, Patrizi defines the human soul as a book written in an archetypal language of mental concepts, which he envisages as a kind of mental hieroglyphics or images, that are prior to language.[94] This language manifests itself on the ontological level of Soul, including the souls of all living creatures.

In his search for knowledge of the harmonic laws of language, Patrizi addresses the sounds of animals in their natural habitat and proposes them as the key to knowledge of the harmonic laws of language. He takes birdsong as an obvious starting point for his discussion.[95] In the history of music theory, most music theorists who drew on birdsong commented on how birds would perform different melodic or rhythmic fragments of music.[96] The question for them was always to assess the degree to which such chirping and clucking constituted music. Like them, Patrizi is interested in the sources of music, but he is also interested in how music ought to sound in order to appeal to human beings and to have a marvellous power over them. He therefore studies the absolute pitches and rhythmical patterns used by animals in order to be able to found a music theory on natural law.

Patrizi deals extensively with the subject of animal speech in "Il Lamberto", the first dialogue of his *Della retorica dieci dialoghi* (*Ten Dialogues about*

93 See Bono 1995, 26–47.

94 Patrizi 1971 III, 12[r].

95 For an introduction to the subject of birdsong in theories about the origin of music, see Head 1997.

96 See Clark and Rehding 2001, 2–5.

Rhetoric; 1562).[97] In this book he defines language sometimes as speech ("articulated human vocal sound with a certain meaning") and sometimes in a more abstract way as a "class of signs denoting mental concepts".[98] Based on this definition, gestures are considered to be an important kind of nonverbal language. Patrizi argues that all beings in the universe use speech to a certain extent. Human beings and animals alike use language to communicate pleasure and pain, what is beneficial or harmful, and what is right and wrong for them.[99] The belief that ethical values are communicated through language will serve as a cornerstone for his aesthetics of music, as we shall see below.

In "Il Lamberto" Patrizi argues that of all creatures using a kind of language, birds deserve special attention, especially the language they use to express their emotions in spring:

> In all trees and in all regions of the world, and through all the valleys in that season of the year [i.e., spring], they listen to each other while they are singing with an articulated voice: the nightingale, the willow warbler, the garden warbler, the linnet, the blackbird, the turtledove, the little swallow, the ring lark, and many other birds.[100] Wild birds as well as the domestic cock are singing uninterruptedly their very sweet hymns, which are variations made up of very sweet sounds. This singing takes place in the east, the south, and the west, in addition to many other animals, who use their indistinct speech to tell their story.[101]

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97 Patrizi 1562, 1^{r}–8^{r} (hereafter abbreviated as *DR*). For an analysis of the context of Patrizi's theory of language and rhetoric presented in this book, see Mack 2011, 304ff.

98 Aristotle, *Historia animalium* 488ab, in Aristotle 1965–1970, 1(1965): 16–17. The definition of 'articulated voices, that is, vocal sound', is Aristotelian. In general, Aristotle makes a distinction between animals that make sounds and animals that are mute, and in the category of 'animals making sound' there is a subcategory of animals making 'articulated sound'. Animals that use speech and singing do so especially in courtship rituals. I owe the references to Aristotle and Plutarch to Puliafito 2012.

99 *DR* 1, 3^{r}.

100 I owe the translation of some of these bird names to Elizabeth Leach and Leofranc Holford Strevens.

101 *Che per tutti gli alberi, et per tutte le piaggie, et per la valle a tale stagion dell'anno, si odono cantando, con voce anco articolata, l'usigniuolo, il logaro, il cardellino, il faganello, il merlo, la tortora, la rondinella, la calandra, et molti altri, senza fine selvaggi uccellini, et il domestico gallo, hinni soavissimi: variati di dolcissimi suoni, all'oriente, o al salente, o al cadente Sole, oltre a molti altri, che hanno lor favella indistinta.* *DR* 1, 3^{v}.

Whereas Vincenzo Galilei had argued that "among rational animals, some are so stupid that owing to their ineptitude they do not know how to make use of their natural faculty of communicating feelings of pleasure and pain with their voices", Patrizi firmly believes that the opposite is true.[102] Accordingly, he defines the archetypal musical language of the rational soul which is shared by animals and men as a basic melodic and rhythmic structure, which can be transformed into many different specific languages used all over the world. Yet behind all the differences in speech—even behind the, to human ears, "indistinct speech" of certain animals—a structure of absolute pitches, harmonies, and rhythmic patterns manifests itself.

Patrizi argues that because of its musical nature, birdsong refers to the paradisiacal state in which speech on Earth was still able to echo the Word of God (fig. 5.2).[103] After the Tower of Babel this knowledge fell into oblivion, but the birds, who were not involved in the Fall, continued to be able to express the pure music of Creation. Therefore, as Clark and Rehding (2001, 2–5) argue, birdsong was supposed to be pre-eminently suitable as a model for earthly music. The exception is the parrot, who is able to imitate human speech (e.g., the Greek word *χαίρε*, 'hello'; see fig. 5.2, lower-right corner) and therefore is not necessarily a reliable guide to the archetypal harmonic language of Creation.

Patrizi begins his discussion of language in the *Nova philosophia* with a justification of his focus on animal speech as a source of knowledge. In its third part, the "Pampsychia", Patrizi argues, on the basis of the testimonies of Pythagoras, Pseudo-Plutarch, and Porphyrius, that animals are capable of speaking, of possessing knowledge of the world around them, and of acting according to this knowledge, and that with regard to language they are as rational as men.[104] In his discussion of the differences and similarities between men and animals, Patrizi repeats his naturalistic opinion that men and animals have much in common, not only as regards their bodies but also in their cognitive faculties and power of speech. He refutes the Aristotelian argument that animals do not possess a rational soul because they lack articulated speech. According to Patrizi, the Aristotelians argue that

> there is one main difference which even more clearly shows that there is a non-rational element in the souls of animals—namely, that they lack speech. Yet this lack of speech is not common to all irrational animals either. They all seem to speak their own language, except fish and

102 Galilei 2003, 225.

103 For medieval theories of birdsong, see Leach 2007.

104 *NUP*3, 57^{v}.

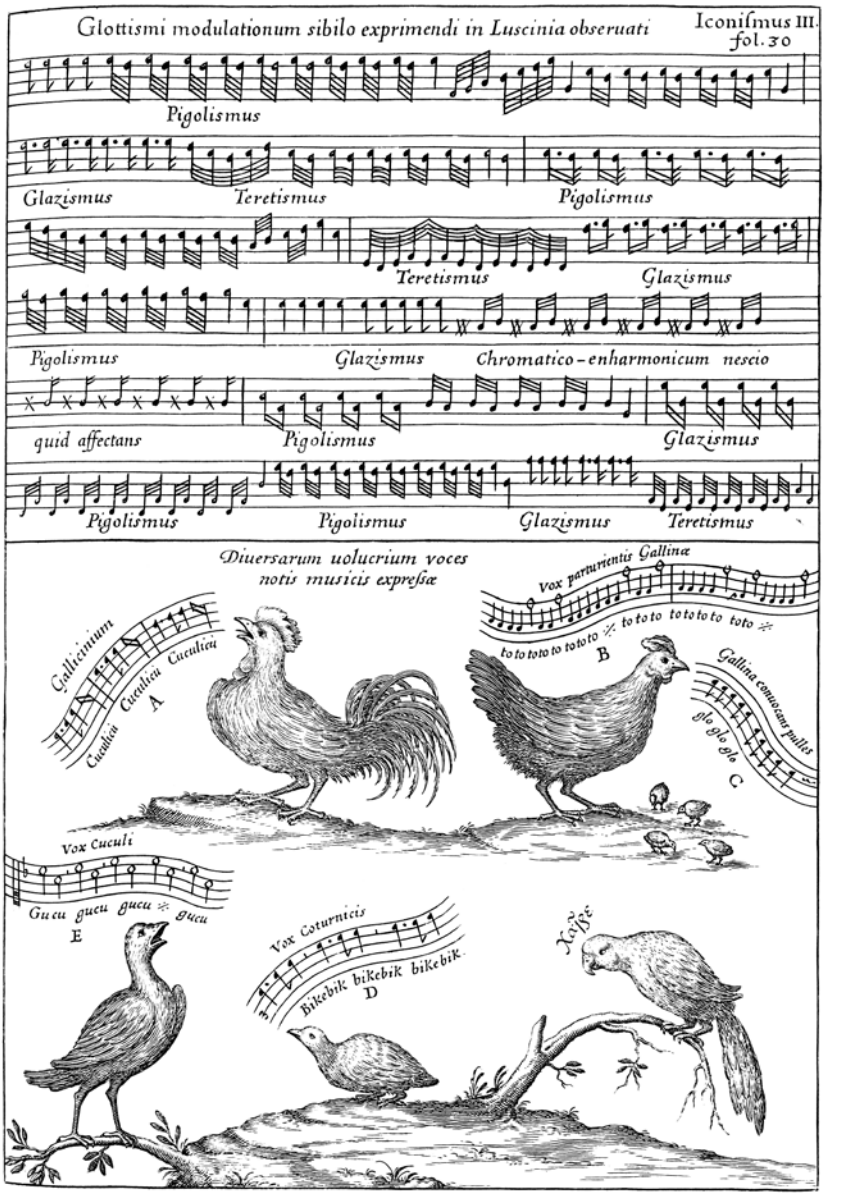

FIGURE 5.2 *Birds and their songs. From Athanasius Kircher*, Musurgia universalis (*Rome, 1650*), *30*.

> reptiles, of which it is generally assumed that they are all mute; hence, too, derives the proverb 'quieter than a fish'. For they do not seem to bring forth any sound at all, without which rational speech or language cannot be formed. By contrast, frogs and tritons [i.e., mythological water monsters][105] do seem to speak. The latter seem to do so through some sort of artifice, by using a shell. The former, however, croak by nature in such a way that they seem to speak not only among themselves but also to us, when by croaking with a higher frequency than normal, they warn us to beware of rain.[106]

On the basis of the example of the frog, who is capable of changing his speech pattern to warn us of rain, and the triton, who is capable of artificially creating a voice by using a shell, Patrizi argues that animals must possess a rational soul, because they are capable of using a kind of language to interact with the world and its inhabitants.[107] And he disables in advance the Aristotelian counter-argument that these inarticulate sounds cannot be defined as proper speech:

> A Peripatetic should not argue that this is not language, because these animals lack the proper pronunciation of syllables and [the use of] articulated names [for things]. For we have never argued that frogs speak in a human language, but, on the contrary, in their own. After all, the Aristotelian definition [of speech] is as follows: speech belongs only to humans and, therefore, to one species only. And lest we become too tightly entangled in ambiguous jargon—and this we take pains to avoid—we define speech more generally: speech is [an expression of] the mental concepts of the soul expressed through the voice.[108]

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105 It is interesting to notice that Patrizi still discusses mythological creatures in his new and strictly scientific explanation of the universe.

106 *Esto primo unum quod et evidentius videtur esse in brutis animis ἄλογον, quia careant oratione. Vel neque haec carentia orationis, brutis omnibus inest. Omnia videntur sua lingua loqui praeterquam pisces, et reptilia, quae omnia muta esse existimantur, unde et adagium, pisce taciturnior. Nullam enim haec de se vocem, emittere videntur, sine qua oratio, aut locutio formari nequit. Ranae tamen, et Tritones loqui etiam videntur. Hi quidem artificio quodam concha adhibita. Illae vero natura ita crocitant, ut et inter se, et nobiscum etiam loqui videantur, quando frequentius crocitando, nos pluvias cavere admonent.* NUP3, IV, 57^{v}.

107 Patrizi quotes here Plutarch's *De sollertia animalium*, 982 E; in Plutarchus 1957, 12: 460–461.

108 *Non hanc esse locutionem oportet Peripatus, quia vox non sit, in syllabas, et in nomina dearticulata. At neque nos inferebamus, ranas humana lingua loqui, sed sua. Haec enim eorum deffinitio, sermonis tantum est humani, speciei scilicet unius. Et ne aequivoco, quod fugere studebamus, implicemur saepius, generalius dicimus. Locutionem esse animi sensus per vocem expressionem.* NUP3, IV, 57^{v}.

Patrizi concludes that both animals and human beings use language in order to express "the mental concepts of the soul through the voice". His interest in the rational soul seems to be moving from its mathematical structure, which had been the main focus for Ficino, to its linguistic and speech-related structure. This is a first indication that the conception of *musica humana* has shifted from the realm of mathematics to the realm of language.

Patrizi continues his research into the archetypal harmonic laws of the rational soul—and their manifestations in speech and language—by stating that animals, like human beings, use speech to communicate and to express their passions and emotions, each in their own more or less articulated language. He argues, against Aristotle who had alleged that the use of articulated speech can count as a valid criterion to define speech as a uniquely human phenomenon:[109]

> Human beings have a need for a new set of rules for their speech, considering the small variations from place to place.[110] And often [speech] is such that the animals speak more sweetly than people. Many men in many parts of both the Old and the New World inflect their language without any or with hardly any articulation. Certain birds, on the other hand, do inflect their language in such a way that it is far more articulated than any human language [but also] more varied and pleasant. They themselves do not understand their language any less well at all than human beings do their own, and the sound they bring forth resonates more sweetly. Why, then, do certain birds and man alone, and also the hyena, know how to inflect their voices in several distinct sounds (or even syllables) and to differentiate between [the vocal sounds]?[111]

109 Aristotle, *Historia animalium* 530a, in Aristotle 1965–1970, 2 (1970): 72–73. In books I–IV, Aristotle gives a comparative survey of internal and external body parts, including tissues and fluids, and of sense faculties and voice.

110 Patrizi refers here in the context of his philosophy of nature to his enquiry into a set of musical rules which determine all human languages—that is, a generative grammar avant la lettre. This theme will be explored further below at 5.3.2.

111 *Homines, ad loci parvam variationem nova opus habent sermonum disciplina. Ac saepe talium, ut suavius habent pecudes, quam homines loquantur. Quorum multi, plurimis regionibus, et veteris, et novi orbis, voces suas vel nulla, vel fere nulla dearticulatione flectant. Flectant autem aves quaedam eam ita, ut longe sit humana quavis dearticulatior, variaque suavisque magis. Quam ipsae non minus toto orbe intelligunt, quam homines quique suam, et dulcius resonant. Cur autem aves quaedam, et homo solus, vel etiam Hiena, voces suas in articulos varios flectere, ac scindere sciant.* NUP3, IV, 58r.

Patrizi concludes that not only men but also birds and even hyenas use articulated speech and therefore must possess a rational soul (fig. 5.3). Therefore, their vocal expressions can be beneficially studied to understand the archetypal musical laws underlying all speech of all rational creatures. As birds and hyenas possess absolute pitch in their speech, their tones must be taken as a point of departure for the definition of a tuning system.

Muſica Haut ſiue Pigritię Animalis Americanî.
Ha ha ha ha ha ha ha ha ha ha ha.
Figura Animalis Haut.
MIrum tamen, nullam huiuſmodi animalis anatomiam vnquàm ab vllo confectam eſſe; ex interiori enim conſtitutione facilè de eiuſdem naturalibus facultatibus conijcere poterant: Si enim os & dentes, ſi ſtomachum habeat, non video cur natura membra cibi reconditoria ſine vſu ipſis aſſignauerit: Sed non dubito, quin mea inſtructione informati Patres noſtri Americani exactiorem in poſterum omnium experientiam ſint ſumpturi.
Voces cęterorum quadrupedum cùm notæ ſint paſſim, ijs non inhærebimus, ſed ad volucrum quarundam voces deſcribendas calamum conuertèmus.

FIGURE 5.3 *The American sloth singing the hexachord. From Athanasius Kircher,* Musurgia universalis (*Rome, 1650*), *27.*

Given that some of the languages of man are barely articulated, and articulated speech can be traced in animal as well as human speech, articulation cannot count as a distinctive criterion of human speech, and hence of the human soul. In order to discover the rules behind speech in general, Patrizi subsequently investigates the means of speech production. Patrizi argues away the superficial differences between animal and human speech with an appeal to different anatomies:

> We believe that the following is the reason [for this difference]: that the upper palate of the mouth, which anatomists call 'Uranian' because it

> resembles the firmament, has the vaulted shape of an arch. Because of this hollow space, our tongue is more able to move freely and to bend in all directions. This state of affairs is best discernible in human beings; next in those birds that talk among themselves in their own natural varied chattering and singing; next in those birds that imitate human speech. As to the other birds, which cannot do that [i.e., speak in an articulate way], it is because their [mouths] are not sufficiently roofed as ours, or because their tongues are not fit for that development because of their brevity, length, thickness, or slenderness. This is also the case with wild animals, whose palates are too flat and not shaped to allow for any hollowness.[112]

With this appeal to the different shapes of oral cavities, Patrizi has removed the last Aristotelian counter-argument for the thesis that animal speech most purely resembles the archetypal musical speech of Creation. He is now able to argue that animal speech contains an echo of the lost harmonic speech of paradise, which had been used until the Tower of Babel.

To recapitulate, animals were conceived of as a lower species in the chain of being and consequently could only mirror a more shadowy image of the origin of being than man. In contrast with this view, Patrizi argues that with regard to his rational soul, man is just a specific kind of animal and shares his capacity for language and speech with many animals. He changes the focus of research into *musica humana* by maintaining that the harmonic laws of Creation must be sought, not in Pythagorean proportions of the metaphysical world, but in speech and sounds of the world of nature. He argues that exactly because of the unreflective and direct character of animal sounds as part of nature, they represent an unspoiled expression of natural order, while human sounds and music are seen as being more susceptible to alteration and degeneration from eternal harmonic laws, because men are able to influence their musical expressions consciously.

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112 . . . id in causa esse remur. *Quod oris palatum superiorem, quem anatomici, ob coeli similitudinem uraniscum vocant, in fornicis figuram habent concameratum. Qua spacii concavitate, lingua nostra liberior est ad motum, et in omnes partes, flexionem. Quae res in homine est manifestissima, tum in iis avibus, quae suo naturali garritu vario, atque cantu, inter se colloquuntur, tum in iis, quae humanam effingunt locutionem. Reliquis, quae id non possunt, vel ut nostrum non est satis concameratum, vel lingua brevitate, longitudineve, crassitie aut tenuitate, ad eam evolutionem est inepta. Sicuti brutis reliquis, uraniscus est pressus nimium, et nulla camera formatum.* NUP3, IV, 58r.

5.3.2 *Towards a New Musical Semantics Modelled after Ancient Greek Music*

Once he has deconstructed traditional ideas about music as a mathematical discipline (see 4.3.2), Patrizi can no longer defend the doctrine that contact with perfect ratios of privileged consonances in earthly music will lead to knowledge of the universe and to a well-tempered life. Therefore, he tries to formulate a new aesthetics of music in line with his ideas about human nature and musical practice.

In epistemological terms, Patrizi's theory of an innocent state of animals and their unspoiled paradisiacal music is complex. On the one hand, it describes a kind of prelinguistic music which is projected in the simple and guiltless vocal expressions of animals. Yet it is also a normative model of an idealized 'natural' music that Patrizi has in mind as a model for the music of his own time. Patrizi continues his quest for this kind of natural music in the field of ancient Greek music. As Gerbino (2009, 1) notes, the idea of a perfect harmonic past was one of the most fruitful products of the sixteenth-century Italian musical imagination. Like many other members of the Italian academies, Patrizi is convinced that in uncorrupted ancient times a kind of paradisiacal music occurred, which exemplified the musical laws of the human soul in perfect form.

A glimpse of this musical paradise can still be found in animal speech. As such, it provided Patrizi with knowledge of the harmonic language of Creation, which humans lost after the Fall. Bearing in mind the idealized past of a *prisca theologia*, ancient Greek music is also given the status of the archetypal uncorrupted music of a more remote, and therefore more perfect, historical past. Just as animal speech is interpreted as a far echo of God's creative Word, ancient Greek vocal music is interpreted as the most perfect language in which a relationship between universal mental concepts, sounds, and words is preserved. It becomes one of Patrizi's main ambitions to understand why ancient Greek music was so effective and meaningful, and a large amount of the music of his own time so superficial and meaningless. He conceives of vocal Greek music as imbued with archetypal harmony, as a result of which it could remedy human manners and passions and restore pristine harmony to the faculties of the human soul.

Ancient Greek music is presumed to be loaded with ethical and emotive power and, precisely because of its structural similarity to the human soul, able to influence man in the most profound way. Patrizi adopts Ficino's programme of reviving ancient Greek music in order to charge the music of his own time with the very same power to affect man's soul. However, in this section I will demonstrate that optimism about the possibility of rediscovering the lost knowledge of an ancient musical paradise is rapidly waning at the end

of the sixteenth century, due to the emergence of new epistemological, philological, and aesthetic ideas.

Ficino, whose philosophical aim had also been to revive ancient musical performance practices in order to enlighten himself and to gain knowledge of the universe, had encountered a serious problem in the sphere of music. He was compelled to find an answer to the question of how to imitate something which had left no material trace of any musical notation behind. Yet as we have seen at 3.5.2, he transformed this problem into an advantage: without limits imposed by written historical sources for musical notation, Ficino was able to reconstruct these practices freely on the basis of his own imagination. After Ficino, and up to the penultimate decades of the sixteenth century, humanists had no knowledge of ancient Greek musical practice. The character of this music could, therefore, be discussed only on the basis of indirect information which, in the form of verbal description, had been written down by Greek theorists of music, as well as on the basis of the hymns and poems which had been passed down.

In contrast with his predecessors, Patrizi is acquainted with the publication of the first discovered Greek melodies in the original text with accompanying original musical notation. This information, however, is not merely an advantage for the new generation of humanists.[113] In spite of finding the last piece of evidence necessary to reconstruct and revive the marvellous ancient musical practices, Patrizi now becomes aware of the impossibility of reconstructing a lost musical past. But as with many other ideas in his philosophy, we will see that this scepticism goes hand in hand with an optimistic belief in a new aesthetics associated with Greek monodic song.

In the penultimate decade of the sixteenth century, a breakthrough in the reconstruction of ancient musical practices was precipitated by the discovery of a few fragments of Greek music as well as a table (compiled by the fourth-century writer Alypius) enabling scholars to decipher old Greek musical notation. Vincenzo Galilei published these fragments and the table in his famous *Dialogo della musica antica et della moderna* (1581).[114] Subsequently, Patrizi studies these fragments and table in Galilei's book carefully and publishes

113 See Galilei 2003, xxix.

114 For this discovery, see Mathiesen 1999, 56–58, 583–584. For editions, transcriptions, and a study of these hymns and their sources, see Pöhlmann 1970, 13–31. For Galilei's discussion of these musical fragments as well as the table of Alypius, see Galilei 2003, lxi, 229–244. For the extant ancient Greek melodies and fragments in general, see West 2001.

FIGURE 5.4 *Transcription of Patrizi's interpretation of the "Hymn of Dionysius".*

them with his own interpretation and conclusions in *Della poetica*.[115] In all, there were three hymns or odes: one to the Muse, one to the Sun, and one to Nemesis. The first was composed by Dionysius, and the other two by the lyrical poet Mesomedes. The first Ἄειδε μοῦσα μοι φίλη ("Sing, my dear Muse") is reproduced by Patrizi in *Della poetica* (fig. 5.4).[116]

Patrizi succeeds in deciphering this musical fragment with the help of the Alypius table, which contains the key to deciphering Greek musical notation. The table gives the rule of thumb for translating the Greek letters into pitches. Patrizi follows Galilei's advice: "To get to know these [songs] better you may want for your own amusement to transcribe them in keeping with modern practical usage, as I said, by means of the characters of Alypius".[117] Patrizi also adopts Galilei's view that the songs were composed in the Lydian mode. Consequently, he equates the minuscule 'sigma' with the Lydian *hypate meson* (corresponding in voice and string to the modern tone of a unison); the minuscule 'zeta' with the Lydian *paranete diezeugmenon* and *nete synemmenon*, which in the Greek perfect tone system denote the same tone (corresponding to the modern tone e); and the minuscule 'phi', which denotes the Lydian *lichanos hypaton* in the voice (corresponding with the tone g).[118] Finally, the last syllable, which "according to Signor Giovanni Bardi",[119] contains no letter for its tone, is provided by Patrizi as a minuscule 'sigma' (corresponding to a modern tone a) (fig. 5.5).[120]

115 *DP*, D16, in Patrizi 1969–1971, 1 (1969): 327–337. This passage is analysed in Tuksar 1980, 79–104; and Palisca 1985, 417–418. For the wider context of the sixteenth-century Dalmatian, or Croatian, discussion on music in which the rediscovery of the modes played a role, see also Tuksar 1992, 129–142.

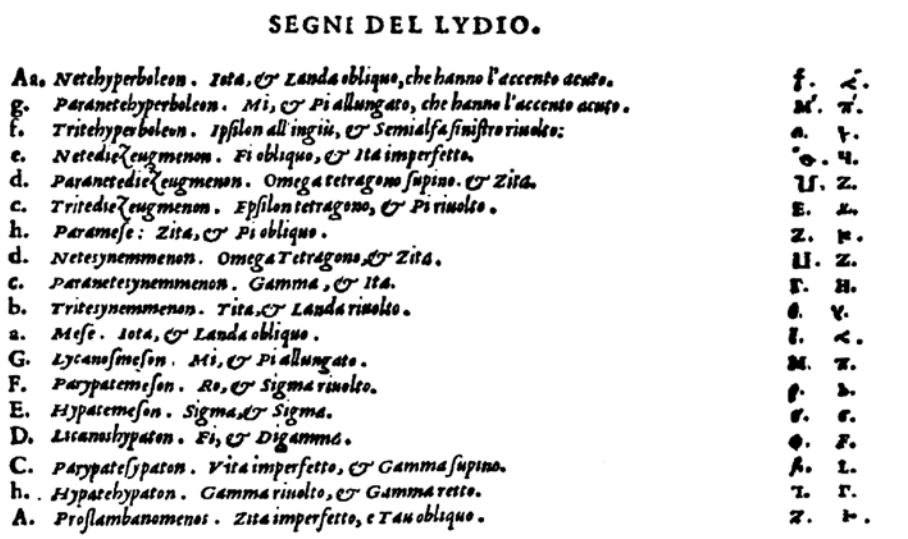
116 Palisca 1985, 418. This figure is based on Palisca's reconstruction of Patrizi's solution.

117 Galilei 2003, 240.

118 *DP*, D16, in Patrizi 1969–1971, 1 (1969): 329.

119 *DP*, D16, in Patrizi 1969–1971, 1 (1969): 350. Patrizi refers in this place to Galilei 2003, 239–240.

120 For Patrizi's contacts with Bardi, see Weinberg 1961, 2: 188; and Palisca 1968, 21. There is evidence that in June 1584 Bardi returned from a trip to Mantua and Ferrara, where he had seen Patrizi.


SEGNI DEL LYDIO.

Aa. Netehyperboleon. Iota, & Landa obliquo, che hanno l'accento acuto.
g. Paranetehyperboleon. Mi, & Pi allungato, che hanno l'accento acuto.
f. Tritehyperboleon. Ipsilon all'ingiù, & Semialfa sinistro rivolto.
e. Netediezeugmenon. Fi obliquo, & Ita imperfetto.
d. Paranetediezeugmenon. Omega tetragono supino. & Zita.
c. Tritediezeugmenon. Epsilon tetragono, & Pi rivolto.
h. Parameſe: Zita, & Pi obliquo.
d. Netesynemmenon. Omega Tetragono, & Zita.
c. Paranetesynemmenon. Gamma, & Ita.
b. Tritesynemmenon. Tita, & Landa rivolto.
a. Meſe. Iota, & Landa obliquo.
G. Lycanoſmeſon. Mi, & Pi allungato.
F. Parypatemeſon. Ro, & Sigma rivolto.
E. Hypatemeſon. Sigma, & Sigma.
D. Licanohypaton. Fi, & Digamma.
C. Parypateſypaton. Vita imperfetto, & Gamma ſupino.
h. Hypatehypaton. Gamma rivolto, & Gamma retto.
A. Proſlambanomenos. Zita imperfetto, e Tau obliquo.

FIGURE 5.5 *Signs of the Alypius table corresponding to the Lydian mode. From Galilei's* Dialogue *(2003, 233–234).*

The discovery brings Patrizi much closer to the lost knowledge of ancient Greek music than Ficino had ever been. Yet instead of being finally able to reveal the harmonic language of Creation, Patrizi runs into methodological problems. Now that he is able to translate the Greek letters of the musical fragments into definite pitches, he becomes even more aware of the fact that the lost knowledge of the supposedly very powerful ancient Greek music will remain forever beyond reach. Knowledge of tuning, temperament, and melodic structure is simply not a sufficient basis for re-creating musical miracles.

In modern secondary literature, Patrizi's reconstruction of the "Hymn of Dionysius" is used both to defend his scholarly eminence and originality and to defend his dependence on his scholarly milieu. Tuksar (1980, 104) concludes his discussion by arguing that Petris (the Croatian version of Patrizi's name) was an excellent scholar in both Greek and music theory and arrived at an original solution to the problem of deciphering Greek music notation without consulting other sources. In my opinion, it is more likely that Patrizi was acquainted with the contemporary debate on this problem and that for the most part he borrowed Galilei's solution.

Patrizi uses the discovery of the musical fragments and the table of Alypius to argue that the texts of the ancient Greek tragedies were sung instead of recited.[121] He seems not to have been bothered at all with the precise

121 *DP*, D16, in Patrizi 1969–1971 1 (1969): 328.

music-theoretical aspects of the modes. He does not raise the question, for example, of whether the dimensions of the intervals of the Lydian mode in ancient Pythagorean tuning correspond exactly with the intervals in the tuning system of his own time. Presumably, he is aware of the fact that the Pythagorean tuning system, which in ancient Greek music determined the size of all intervals in all modes, is no longer in use in his own time, and that therefore the magical power attributed to the consonant intervals in this ancient Greek tuning system, strictly speaking, has disappeared with them.[122]

Patrizi, however, perseveres in his search to formulate a new kind of music modelled after the very powerful ancient Greek music. But in order to succeed in creating a musical language with the same potential to influence the human soul, to strengthen its ethical quality and to move the passions, he must transform his knowledge of ancient Greek music into something that can be used in the musical practice of his own time. He is compelled, therefore, to come up with a theory in which something other than the magical Pythagorean consonances must produce the magical effects of modern music in the sixteenth century. He searches for a new foundation for musical theory in the direction of the musical aspects of language and speech.

Patrizi's philosophy of music, in fact, is related to the musical humanism of the second half of the sixteenth century. Patrizi helps to shape the movement of the *stile nuovo* (new style: *seconda prattica*), in which words were given preference over the tones of the *stile antico* (old style: *prima prattica*).[123] The musical magic of the Pythagorean intervals shifts in this new movement from the privileged consonances to the words and the mental concepts they denote. Already in his youthful work *La città felice* (*The Happy City*; 1553) Patrizi gives an account of his search for the lost knowledge of ancient Greek music's ethical power to affect man's soul.[124] In imitation of Plato and Ficino, Patrizi argues that this knowledge should be sought in the structure of the ancient Greek musical modes. But already in his early writings, Patrizi shows more awareness than Ficino of the problems involved in modelling a musical language after a lost idealized ancient Greek model.

Patrizi is convinced that music's influence over the human soul is so powerful that if the right musical modes are chosen, it can be used to balance human

122 For the place of music theory in Patrizi's *DP*, see Moyer 1992, 235–241.

123 See Palisca 1985, 369–407, 408–434.

124 Patrizi 1941, 141. For the concept of the ideal city in Renaissance Italy, see Firpo 1975. For an introduction to the aesthetics of *La città felice*, see Bolzoni 1980, 38–46; and Kamalić 1933, 57–74.

passions or emotions.[125] Due to its ethical power, moreover, music can even be beneficially used in an educational programme to create ideal citizens for an ideal state:

> Likewise, music can be used to stimulate, to tranquillize, and to order our soul. Therefore, Phrygian music warms our soul and fills us with passion; Lydian [music] makes us tranquil and replenishes our reserves; Dorian [music] induces in us a harmonious mood;[126] and then Hypolydian [music] makes us sad and plaintive. And although we no longer know thoroughly these kinds of music in our time, [we might assume] that nevertheless our own kinds of music, as is proven every day, are able to move the soul. And there are some kinds [of contemporary music] which somehow resemble those of antiquity: French [contemporary music] resembles Phrygian; Neapolitan music, Lydian; and finally, Lombard is similar to Dorian. But given that the mean is preferable to the extremes, for virtue lies in between,[127] it would be better that youth should first of all be trained in Dorian [music]—or, instead, in [its contemporary equivalent,] Lombard music, which of all kinds of music is the most well balanced—in order to anchor the soul in this intermediate state.[128]

From the remark in this passage that "the mean is preferable to the extremes", we may assume that Patrizi, like Plato and Ficino, believes that music is a way to obtain a well-tempered life by controlling the passions of the mind. With this Neoplatonic backdrop, it is not surprising that he expresses his preference for the Dorian mode, which was traditionally associated with moderation,

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125 Plato discussed the place of music in an ideal state in his *Republic* at 377b–c, 411a–b, and 595a–608b.

126 Plato, *Laws* 656c–657a.

127 Plato, *Laws* 670b–c.

128 *La musica parimente giova molto ad incitare, ad acquetare e ad assettare l'animo nostro. Perciocché la musica Frigia ci riscalda l'animo e ci empie di furore; la Lidia ce lo fa tranquillo e rimesso; la Doria ce lo acconcia in un mezzano stato; la Hipolidia, poi, ce lo fa mesto e lamentevole. E, se bene queste musiche oggidì non sono da noi conosciute, nondimeno le nostre possono anch'elle molto* (*come tutto dì si prova*) *movere l'animo nostro. E sono alcune, che con gli effetti dell'antiche alquanto s'assomigliano: le Francesi alla Frigia, le Napoletane alla Lidia, le Lombarde alla Doria. Ma essendo sempre il mezzo da preporre alli suoi estremi, per esse in quello collocata la virtù; meglio sarebbe, che i fanciulli nella Doria, ò in sua vece, nella Lombarda, che sta di tutte nel mezzo, primieramente l'abito facessero, per fermare l'animo in quel mezzano stato*. Patrizi, *La città felice*, 1953, 18^{r}–19.

balance, and harmony. At first sight, however, his attempt to relate ancient Greek to modern Italian music makes a casual and superficial impression. He equates, for example, the sixteenth-century Lombard music from his own native region with Dorian music from ancient Greece, without offering any kind of justification for this equation. His comparison between Lombard and Dorian music recalls a section in Galilei's *Dialogo* where he discusses the pitch of speaking voices in different provinces in Italy and argues that the Lombards generally speak and sing with a lower pitch than the Tuscans and that this must also have been the case in the provinces of Lydia, Phrygia, and Doria in ancient Greece.[129] It seems that Galilei is dealing here with the phenomenon of absolute pitch, the ability of a person to identify or re-create a given musical tone without the benefit of a reference tone. Yet he concludes that it is better to "leave it to naturalists to debate" the relation of pitch and speaking voice among different peoples. Though it is tempting to compare the two sources, it is unlikely that Patrizi possessed an early manuscript draft of Galilei's *Dialogo* around 1553. Whether both treatises based themselves here on another, shared source has to be investigated. Whatever the case, the quotation supports the thesis that Patrizi was looking for a new musical model that was inspired by ancient Greek vocal music.

A further clue to Patrizi's innovative interpretation of the ancient doctrines of musical ethos and the harmony of the spheres can be found in the "Sostentamenti" ("Preface") of his poem *L'Eridano* (1557), which deals with the origins of music.[130] In this preface he refers to his *Dialoghi della musica poetica* (*Dialogues on the Poetics of Music*), which could be either a lost treatise or the discussion of music which subsequently showed up in *Della poetica*.[131] In this commentary Patrizi deals with a new semantics of music modelled after ancient Greek music, which can be described as a generative theory of tonal music avant la lettre.[132] He is clearly aiming to explain the unique human

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129 Galilei 2003, 171–172.

130 For the concept of poetry, music, and harmony in *L'Eridano*, see Aguzzi-Barbagli 1983, 69–72; Bolzoni 1980, 46–52; and Borsetto 1997.

131 *Et questo tanto basti per brieve sostentamento del mio nuovo verso Heroico. Però che le altre cose che per confermamento delle discorse si potrebbero arrecare sono state elle già da me ne predetti miei dialoghi della Musica poetica lungamente disputate. L'Eridano* in Aguzzi-Barbagli 1983, 70. Aguzzi-Barbagli suggests that Patrizi's *Della Musica Poetica* may be lost, but Patrizi could also have been using this title to refer to the music-theoretical treatise which is included in his *Della Poetica*.

132 Provided that we keep its unique historical characteristics in mind, Patrizi's rational semantics of music can be understood as a precursor of Heinrich Schenker's and Fred Lerdahl's and Ray Jackendoff's search for a generative theory of musical form and funda-

capacity for musical understanding and to provide a formal description of the musical intuitions of a listener who is experienced in a musical idiom.

His abhorrence of Aristotle notwithstanding, the ideas on music in Patrizi's *L'Eridano in nuovo verso heroico di Francesco Patritio: con i sostentamenti del detto verso* (*Eridano in New Heroic Verse of Francesco Patrizi: With a Preface to the Aforementioned Verse*) are evidently based on the concept of musical imitation in Aristotle's *Poetica*, a treatise that was rediscovered only in the sixteenth century.[133]

As Scruton (1997, 119) explains, Plato's imitation, or 'mimesis', theory is incomplete as it stands and therefore difficult to distinguish from Aristotle's theory. He notes that Plato's use of *mimesis* in the context of a philosophy of music assumes an understanding of the crucial term—*mimesis*—a term which Plato made no effort to define unequivocally. The term *mimesis* was used by Plato not only to cover all the many kinds of imitation in life but also to describe all forms of artistic meaning. Plato's usage is insensitive to the principal distinctions between representing, expressing, and merely copying: three quite distinct ways in which a work of art can be related to a 'subject matter' or 'content'. Against this backdrop, Patrizi can be seen as one of the first philosophers to try to work out these principal distinctions to defend a Neoplatonic aesthetics of music as an alternative to the fashionable Aristotelian view of music.

In Padua, Patrizi studied with Francesco Robortello (1516–1568), who became famous as the first important Renaissance commentator on the *Poetica* of Aristotle (1548).[134] While Robortello tried to reconcile Plato with Aristotle, Patrizi explicitly tries to defend Plato's aesthetic ideas and to deconstruct Aristotle's aesthetics of music, in which the pleasurable musical experience is a key concept. Quite paradoxically, Patrizi dedicates himself so passionately to this task that he becomes entangled in Aristotle's ideas and, in spite of his original intentions, incorporate many important theoretical concepts originating from the *Poetica* into his aesthetics of music.

As a matter of fact, Aristotle's explanation of music's power to affect man's soul matches very well with Patrizi's naturalistic explanation of language and music. As the point of departure in his *Poetica*, Aristotle takes the notion that

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mental structure based on the cognitive prototypes of musical perception. See Lerdahl and Jackendoff 1983.

133 Kennedy 1990, 574.

134 Robortello's commentary drew together scattered observations on the *Poetica* from writers of the previous twenty years and set the general directions to be followed by the majority of subsequent critics. See Carlson 1993, 38.

every human being has a natural disposition to imitate.[135] Thanks to this disposition, man is better equipped than any other animal to learn. Man not only has a natural disposition to imitate actively but also experiences natural pleasure when he is exposed to products of this inclination to imitate and to experience them as imitations. Patrizi argues with Aristotle:

> After having given to men speech for their basic needs, [God] gave them song for their pleasure and for the mitigation of their labours.[136]

Aristotle deemed music the imitative art par excellence. Musical imitation refers not only to musical imitations of birdsong or raindrops, that is, sounds in the external world, but also to musical imitations of human emotions, that is, to sounds in the internal nature of the human soul. Aristotle explains the enormous influence of music on the human soul on the basis of their resemblance. Although Patrizi adopts the essentials of Aristotle's aesthetics of music, he clearly is more interested in the 'expression' of innate musical ideas from the human soul than in 'representation' of sounds from the external world. This difference is fundamental in the formulation of his new theory of music's magical power to influence man's soul, which will be discussed below.

Following Plato and Aristotle, Patrizi believes that during the act of singing, the human soul 'moves with the voice', and in this way a musical message is communicated to a listener. As an alternative for the elaborated theory, encountered in Ficino's philosophy of music, that the musical qualities of the planets could be imitated in earthly music, in *L'Eridano* Patrizi offers a detailed analysis of syntactic, as well as semantic, aspects of musical verse. In order to have a powerful ethical influence on man's soul, music must satisfy the following demands: (1) a song must be based on the melodic and rhythmic patterns inherent in the natural language in which it is written; (2) a song must make use of the tonal laws inherent to the human soul; (3) and finally, contemporary musical verse should imitate ancient Greek poems and songs, because in Patrizi's idealized conception, the words of the ancient Greek language express universal mental concepts and emotions in the best possible way.

Although the last criterion is of importance for Patrizi, he is aware of the historical gap between antiquity and his own time. In order to bridge this gap, he argues that ancient musical verse must not be imitated literally, because such

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135 Aristotle, *Poetica* 1447a, in Aristotle 1995a (1998), 28–31.

136 *Havendo la natura dato a gli huomini il parlare per necessità delle bisogne loro, così lor diede per lor diletto e per alleggiamento dello lor fatiche il canto. L'Eridano*, "Sostentamenti", in Aguzzi-Barbagli 1983, 71.

direct imitation would not work in his own time. His innovative approach to this topic is fully in line with the tenor of his rhetoric, described by Mack (2011, 304) as a Platonically inspired attack on rhetoric that asserts the primacy of the more creative use of language in poetry. This attempt to revive Plato's attack on rhetoric would have seemed hopeless a generation earlier. With changed historical conditions, ancient musical knowledge can be used only if it is adapted to the demands of the language and culture in which it is rediscovered. The creative adaptation of the ancient model of musical verse he advocates, however, is a powerful strategy to justify new sixteenth-century musical ideas. This is reflected in Patrizi's advice to write contemporary verse in the following way:

> Finally, I would decide to follow the path of harmony, . . . because it seems to me more scientific if I were to found the art of the new verse in the basis of what is essential and proper to song.[137]

Patrizi advises us "to follow the path of harmony", but in contrast to Ficino, he refers to harmony, not as the traditional mathematical science of harmonics, but as "what is essential and proper to song" as the foundation of the new rhetorical art of music and poetry. Thus, the transformation from music as a mathematical science to music as a rhetorical art already takes place early in his career. His new linguistic conception of the foundation of music manifests itself very clearly in the following passage in the preface to his *L'Eridano*:

> And while in my *Dialogues on the Poetics of Music* I already considered that nature itself made in the words of this language [i.e., Italian] the three harmonies, that is, the octave, the fourth, and the fifth, which are the three simple melodic consonances of the music of antiquity, indicated respectively by the terms 'diapason', 'diatessaron', and 'diapente', I decided to apply them to the construction of metrical feet. . . . In my attempt to compose verse with metrical feet made in this way, I saw very clearly that this speech [i.e., Italian] could not contain a diatessaron except at the beginning of a phrase; and this is because it has the sound of a dactyl, which is opposed to the diatessaron.[138]

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137 *Mi risolvei alla fine di prendere la via dell'armonia . . . perchè mi parea piu scienzialmente fondare arte di nuovo verso, s'io la fondassi in cosa essenziale al canto e propria. L'Eridano*, "Sostentamenti", in Aguzzi-Barbagli 1983, 72.

138 *Et havendo io già ne'miei dialoghi della musica considerato che la natura stessa avea posto nelle parole di queste lingua* (*italiana*) *le tre armonie, ottava, quarta e quinta, che sono le tre semplici consonanze de gli antichi musici, diapason, diatesseron e diapente; deliberai*

Once the building blocks of musical intervals in ancient Greek and modern Italian music have been compared, Patrizi draws the conclusion that of "the octave, the fourth, and the fifth, which are the three simple melodic consonances of the music of antiquity", the fourth is seldom used in modern spoken Italian. Despite their variable appearance in different languages, these consonances are still seen as the basic ingredients of the melody and metrical pattern of a language—that is, as a universal tonal grammar.

Subsequently, Patrizi continues his investigation into the universal tonal grammar of all the languages and musical styles of man. During his research, however, he comes to see that the melodic and rhythmic components of Greek and Italian are far less similar than he originally expected:

> Thereafter, I decide to conform to its will [i.e., the genius of the Italian language]; and after I had rejected this metrical foot [i.e., the dactyl], I limited myself to the other two, the octave and the fifth; and I regulated them to the rules [of Italian] in such a way that their cadences, which consist of accents, corresponded with the even syllables, beginning, like the verse used in this language, from the fourth: and in this way the five metrical feet of my verse appeared to be in the same proportion as in ordinary verse. . . . And in this way I divided my verse into two kinds of metrical feet, in the same way the Greeks and Romans had always done; and I gave the verse the same number of metrical feet that they had given it. Subsequently, I always ended up with thirteen syllables . . .[139] And this became the undisputed foundation [of my art of writing verse], which is not based on foreign [or ancient] elements, but on the essential [art of] singing and love for this [Italian] tongue.[140]

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di servirmi di loro per piedi. . . . In provando io adunque di fare i versi con così fatti piedi, chiarissimamente vidi che questa favella non pativa di ricevere, fuori che nel primo luogo, il diatesseron; e questo perché egli ha suono di dattilo, col quale ella ha tanta nemistà. L'Eridano, "Sostentamenti", in Aguzzi-Barbagli 1983, 72.

139 It has been argued that Patrizi, having studied ancient theories of music, invented the thirteen-syllable verse form known thereafter as *versi martelliani*. See Baxter 1898, 29–31.

140 *Fu adunque a me da governarsi a voglia di lei; e, rifiutato questo piede, mi ritenni gli altri due, ottava e quinta; e gli regolai in modo che le cadenze loro, che sono gli accenti, venissero a posarsi in su le sillabe pari, incominciando nel modo del verso usato in questa lingua, dalla quarta; e riuscirono i cinque piedi del mio della medesima ragione di tutto il verso commune. . . . E così misurai io il mio verso con due maniere di piedi, come i Greci e i Latini fatto avevano; e tanti gliene diedi quanti gliene aveano essi dato. E appresso venne egli di tredeci sillabe a riuscire sempre. . . . E fu il . . . fondamento* (*del mio verso*) *sicuro, non sopra straniera cosa, ma*

Thus, it is the musical pattern of the spoken version of modern Italian rather than written Greek and Roman poems that should be imitated in order to regain the lost knowledge of an archetypal musical rhetoric, in which songs were loaded with a strong ethical and emotional content. The idealized natural character of Italian speech functions as a model to be imitated in music and poetry in order to create music capable of profoundly influencing the human soul.

The formulation of a new, linguistically oriented aesthetics of music in Patrizi's early texts fits with the transformation of the relationship between art and science in Italian music theory at the end of the sixteenth century. As Tatarkiewicz (1980, 244) shows, this development meant that the traditional way of thinking about music as a mathematical science gave way to thinking about music as a rhetorical art. He observed that Vincenzo Galilei's *Dialogo* distinguished between the sciences, which seek to find the truth in natural phenomena, and the arts, which aim at making something that is different from understanding. Patrizi follows Galilei in the way he separates the science of music from the art of music. Scientific music theory is rejected as a suitable instrument for the creation of musical compositions and is used only for their study. Music theorists increasingly concentrate on the study of musical phenomena in the external world, while musicians and, especially, singers are allocated a role in expressing their inner world and connecting their listeners with this inner world. Accordingly, Patrizi deals with the science of music in his *Nova philosophia* and with the aesthetics of music in treatises such as his *Della poetica*.

From the very beginning of the "Deca Istoriale" ("Ten Books on History")—the first part of his *Della poetica*—Patrizi continues to develop a Neoplatonic music theory in which poetry and music are intertwined. In this detailed history of music, he deals with theoretical sources from a historical and philological perspective in order to reconstruct, among other things, the performance practices of ancient Greek music. But in contrast to Ficino, Patrizi does not simply believe in the possibility of a complete reconstruction of ancient musical practices. In his musical history, he exhibits a critical approach to the sources: in many places the quality of the sources is too poor, and times and people have changed too much, for a genuine revival of ancient Greek music.[141]

In addition to writing a history of music, Patrizi studies musical sources from an ancient past to find further proof for his belief in the musical origins

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sopra essenziale del canto e amata da questa favella. L'Eridano, "Sostentamenti", in Aguzzi-Barbagli 1983, 72.

141 *DP*, D17, in Patrizi 1969–1971, 1 (1969): 339, 347.

of language. Music, in his view, must imitate and communicate the basic structure of the human soul, which is expressed in speech. Human emotions are also made of a kind of soul stuff, which is essentially musical in nature. Hence, he seems to be looking for the cognitive and emotive prototypes of musical perception and to be interested in how these mental prototypes shape musical perception.

In Ficino's religious and magical music philosophy, man aimed at liberating his soul from disturbing emotions and passions by following a spiritual path that proceeded from the loss of self to reunion with God.[142] During this process, man could liberate himself from agitation and temptation and, by so doing, pass through a mental circle from emotion to peace of mind.[143] In Patrizi's secular music philosophy, however, the experience of emotions and passions is judged in a more positive way, because they can play an important role in musical experience, learning, and communication.

The Neoplatonic belief that music has the power to shape and condition the human soul is reflected in Patrizi's theory about the relationship between speech, language, and music. Like Ficino before him, Patrizi adopts Plato's idea that music consists of words, harmony, and rhythm and that language is the most important part of this triple subdivision.[144] Patrizi's preference for words rather than tones as a basis for a music theory is shared by many members of the various *camerate* and *accademie* in which he participated.[145] In Patrizi's philosophy of music, however, the relationship between words and tones is much more complex than in the writings of many other members of these *camerate*. On the one hand, he is convinced that language and music share the same tonal semantics, implying that tones, because of their logical priority, are more important than words. On the other hand, at the level of practical music, Patrizi argues that words, because of their close relationship with thoughts and emotions, are more important than tones. Hence, composers have to follow the affective connotation of words in composing their songs.

Patrizi argues against the view, held by many other famous members of the Florentine Camerata, that the counterpoint used in compositions of his time is a degraded practice that has deprived music of its original power of

142 See 3.3.2.

143 See Sorabji 2000, 81–92.

144 *DP*, D17, in Patrizi 1969–1971, 1 (1969): 339. This doctrine is based on Plato's *Republic* 397–401b, esp. 398.

145 See Palisca 1968, 9–38.

expression.[146] His colleagues believed that because a listener would not be able to follow the text of the individual vocal lines of a polyphonic composition, the meaning of that text could not influence the human soul. Patrizi, however, shares their belief that an archetypal tonal harmony exists, which, if used correctly, can load earthly music with a magical power to influence the human soul. Yet in his *Della poetica* he only very briefly addresses the theory of the ethical power to affect man's soul attributed to the ancient musical modes.[147] As a historian of music he mentions that "the ancients used poetry and sound as an incantation against corporeal diseases and weaknesses".[148] He also voices the idea that different musical modes have different effects on the human soul:

> without doubt one kind of music is more appropriate than another, because their natural differences induce diverse feelings in the souls of others.[149]

Here Patrizi repeats the famous Platonic idea that music has the power to influence the human soul deeply. Accordingly, certain musical modes capable of inciting moral behaviour, such as the Dorian mode, are to be preferred over modes that seduce man to profligacy. Man should aim to improve himself morally, and music is meant to help him to find emotional balance and harmony in his whole existence. Patrizi repeatedly mentions music's power to influence man's soul, but nowhere does he formulate a detailed theory of the power of different kinds of music or of different musical modes or tonalities.[150] Presumably, this is due to the fact that the use of the musical modes is a superseded musical practice at the end of the sixteenth century in Italy, whereas for Ficino to a certain extent the special melodic structure of the musical modes was still a living practice. In general, Patrizi seems to be searching for a way to formulate the idea of music's power to move the human soul in terms of the tonal harmony emerging in his time. This is in line with his

146 This is demonstrated, for example, by the fact that Patrizi praised Tarquinia Molza both for her knowledge of the rules of counterpoint and for her practical application of this knowledge in her performance of some famous madrigals. See Patrizi 1963, 40–41.

147 *DP*, D17, in Patrizi 1969–1971, 1 (1969): 348–352.

148 *Similmente usarono gli antichi la poesia e 'l suono ad incantare i mali e le infermità del corpo. . . . DP*, D14, in Patrizi 1969–1971, 1 (1969): 275.

149 *. . . non è da dubitare che l'una musica più che l'altra, di natura tra loro differenti, sforzano gli animi altrui a diverse affettioni. DP*, D17, in Patrizi 1969–1971, 1 (1969): 351.

150 *DP*, D14, in Patrizi 1969–1971, 1: 277–278, 361; and DD9, in Patrizi 1969–1971, 2 (1970): 165.

adherence to Aristoxenian music theory, which could be more easily reconciled with late sixteenth-century ideas about tuning, temperament, and tonality than the Pythagorean music theory.[151]

From Patrizi's investigation of the relationship between the human soul, language, and music in his early texts, we may conclude that melody, rhythm, and harmony are the defining musical parameters of this relationship. The rhythm and the melody of any given native language imitate the universal musical laws of the human soul and its thoughts and emotions. The inherent musical qualities of native speech should be imitated in vocal music in order to communicate and to influence the human soul in a deeper way than language can do. In addition to his ideas on the musical foundation of languages, Patrizi maintains that the universal tonal grammar he is investigating is best preserved in ancient Greek language and music. As Palisca (1985, 412) observes, he is convinced that the ancient Greeks sang their religious poetry as well as their tragedies. Their musical performance practices can be used as a model for modern musical practices, but only if one keeps in mind the differences between ancient Greek and modern Italian. If their monodic and emotionally powerful musical style is imitated loosely, a revival of ancient Greek musical practices is indeed possible.

In conclusion, Patrizi's aesthetics of music exemplifies a tendency in late sixteenth-century Italy to privilege words over tones in music theory. This shift from the quadrivium to the trivium in music is linked with the demolition of the Pythagorean tuning system as the purest expression of the harmonic laws of the cosmos. Though Patrizi seems to have had nothing against contrapuntal music, his new aesthetics of music furthered the abolition of counterpoint in favour of monody—that is, a vocal solo with instrumental accompaniment.[152] Patrizi's aesthetic theory was used in sixteenth-century debates on the foundation of music to demonstrate that counterpoint rules are conventional rather than natural in character and that in order to compose good music they must not necessarily be followed.[153] The rejection of traditional contrapuntal rules for making music created space for the expression of mental concepts and emotions which, in Patrizi's view, had a direct relationship with the human voice, language, and speech. This transformation in musical thought directly influenced the doctrine of world harmony, because language and speech were regarded as manifestations of an underlying universal musical grammar.

151 See 4.3.2.

152 For Vincenzo Galilei's critique of counterpoint, see Galilei 2003, 197ff.

153 See Fubini 1990, 125–127.

5.4 A Musical Expression of the Ineffable

5.4.1 *Critique of Aristotle's Theory of Imitation*

In this section I will argue that Patrizi's interest in ancient Greek musical sources acts as the starting point for a transformation of traditional ideas about the relationship between earthly music and cosmic harmony. This transformation, moreover, is linked with Patrizi's critique of Aristotle's theory of imitation. After the historical investigation of ancient poetical practices in the first part of *Della poetica*, Patrizi formulates a functional approach to poetry and music in the second part of the treatise, the "Deca Disputata" ("Ten Books on Criticism"). In this part, which is written to deconstruct Aristotle's imitation theory as a sound base for poetics, the precise nature of a musical experience is investigated further.

In sharp contrast with the Aristotelians, Patrizi argues that nothing of the external world can be imitated by the sounds or tones of earthly music:[154]

> Sound in itself, without the accompaniment of words and rhythm, cannot imitate nor be an imitation of something else. . . . Hence, the harmonious sound of any instrument cannot be an imitation, and what is more, it does not even resemble any kind of imitation.[155]

In his argument for music as an expressive, rather than an imitative, art, Patrizi quotes the Pseudo-Aristotelian Problem 919b to prove that it is true that heard musical consonances (i.e., melodic intervals) are unique in having an ethical character whereas other objects of the senses do not possess a similar moral content.[156] Patrizi argues that musical consonances, which in his view are harmonic intervals or chords, do not possess a moral character, because consonances do not make use of time. From this argument it becomes clear that Patrizi's music theory reflects the development of tonal harmony.

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154 Patrizi refers in this place to Plato's *Laws* 669d, where Plato argues that in instrumental music nothing at all can be imitated.

155 *Non può, adunque, il suono solo senza compagnia di parole e di ritmo imitare, nè essere egli imitazione. . . . Adunque il suono armonioso di qualunque stromento musicale non pure non è imitazione, ma nè anche a niuna imitazione s'assomiglia.* DP, DD9, in Patrizi 1969–1971, 2 (1970): 171. For the translations in 5.4 I consulted translations of Patrizi's DP in Tatarkiewicz (1980) and Weinberg (1961).

156 *Problem* 919b, quoted in DP, DD9, in Patrizi 1969–1971, 2 (1970): 171. Why Patrizi, as a fervent anti-Aristotelian, used this 'Aristotelian' source remains unclear. For the music theory of the *Problemata*, see Barker 1989, 2: 85–97. For Patrizi's use of the *Problemata* in his music theory, see Palisca 1985, 425–426.

To put it another way, the Pythagorean melodic consonances no longer play a structural role in his music theory. Furthermore, Patrizi's interpretation of the Platonic idea that music has the power to influence the human soul is influenced by the content of Problem 27.[157] Both writers agree that because both the experience of a human emotion and the expression and hearing of a musical emotion take place in time, a moral character or emotion can 'move with the singer' during a musical performance in a quite magical way.

To answer the question of how precisely cognitive, ethical, and emotive meaning can be 'moved with the singer', Patrizi investigates the music-mind interface in further detail:

> And included in a song were the words, and in the words the meanings and the mental concepts of feeling, fantasy, opinion, reason, and mind, both the mental concepts derived from external things and the ones which are inherent in the soul from the very moment of its creation, which can be retrieved from the darkness of corporeality when one becomes gradually conscious of them.[158] These mental concepts are formed on the basis of interaction between reason and imagination.[159] They are formed in the cognitive faculty, which is situated between them—that is, in the faculty of the formation of a judgement.[160] These mental concepts, which are created in the mind of the singing poet, together with the harmony of the words and of the tones, pass through the ears and the souls of the listeners and move in them the very same powers of the soul which are emanating from the musical activity of the singer.[161]

157 *Problem* 27, quoted in *DP*, DD9, in Patrizi 1969–1971, 2: 171.

158 For Ficino's interpretation of the Neoplatonic theory of anamnesis, see 3.4.1.

159 For Patrizi's theory of the human cognitive faculties, see 5.2.3.

160 The shifted place of the Platonic faculty of *doxa*, that is, the formation of a judgement or opinion, is discussed at 5.2.3.

161 *E comprese nel canto erano le parole, e nelle parole i significati e i concetti o delle sentimenta, o della fantasia, o della opinione, o della ragione, o della mente, o levati dalle cose di fuori, o ingenerati nell'animo fin dalla sua creazione e ricoperti dalle corporali tenebre, e ad ora ad ora danti fuora, o formati di que'due* (*dal discorso della ragione e della fantasia*) *nella potenza tra loro posta, detta opinione. I quali concetti fatti nell'animo del cantante poeta, insieme con l'armonia delle parole e del suono, trapassano per l'orecchie ne gli animi de gli ascoltatori, e muovono in loro quelle potenze dell' animo medesime, che dalle così fatte del cantante sono uscite. DP*, DD9, in Patrizi 1969–1971, 2 (1970): 168–169.

Patrizi's answer to the question of the origin of music's ethical power is based on the Platonic theory that innate ideas—that is, mental prototypes—shape musical perception. If a creative musician is able to understand and communicate the mental musical concepts embedded in a musical composition, then these very concepts can be communicated to people in an audience during a performance.[162] Whereas Ficino theorized about the sense of hearing and musical communication as the transference of semi-corporeal spirits, Patrizi abandons the concept of spirit from his explanation of how music influences the soul. The concept of sympathetic vibration in the field of his aesthetics of music develops into a purely psychological account of the effect of music on the soul.

Patrizi and Ficino share a similar view on musical creativity.[163] Both believe that the art of music must be aimed not at the imitation of something in the external world but at the creation of something new. Furthermore, the value of this creation, as Cassirer (1963, 161) notes, consists not in its departure from nature and from the empirical truth of things but precisely in its grasp and revelation of a kind of universal truth. As Neoplatonic philosophers, they share the view that music is able to express this truth, which is situated in the intelligible realm beyond the reach of the senses. Therefore, they are interested not in imitation of the audible sounds of nature but in the expression of inaudible mental concepts. For both philosophers, the concept of the harmony of the spheres functions as such a mental concept which can be creatively expressed rather than imitated in earthly music.

Nevertheless, there is a major difference between Ficino's and Patrizi's views of world harmony. Whereas for Ficino man and earthly music participate in an all-embracing metaphysical structure of world harmony, for Patrizi the very nature of music is split. On the one hand, sounds are a purely physical subject of acoustics, but on the other, they play an important role in the subjective musical experience of man. In addition, they are important as the musical foundation of language. Given that Pythagorean proportions are dismissed and consonances are shifted to the disenchanted realm of physical facts, the power of music has to be explained in another way. Patrizi's solution to this problem is sought in transferring the magical power of music to affect man's soul to the realm of the inner world of man, where musical magic still is a theoretical possibility.[164]

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162 For Ficino's ritual music practices, see 3.5.2.

163 For Ficino's theory of creativity, see 3.2.2.

164 This position is fully compatible with Patrizi's theory that numbers, ratios, and proportions are conventional constructs. See 4.3.2.

In Patrizi's musical aesthetics, a tone, interval, or chord can express musical, emotional, or intellectual content in only a secondary way—that is, combined with language:

> Especially if they [i.e., songs] are sung with mastery, and if the harmony of the [accompanying] instruments accommodates itself to the harmony of the song and the words, a state of mind, [for example,] sorrow, joy, rage, kindness, or whatever [other] state, can be expressed. I will say then that this [instrumental] harmony conforms to the words. And if these words are imitations of [ethical] states of minds and of affects, then shall their harmony also produce in the same way an imitation. But if words are more often symbols, signs, and manifestations of concepts and movements of the soul, as they truly are, and not the likenesses, as Aristotle attests, of gestures and colours, then harmony will not be a kind of resemblance [representation] but expressions and declarations of the [ethical] states of minds and affects of the soul and signs and indications of internal concepts.[165]

In Patrizi's aesthetics, music shifts from an art that should imitate the supernature of a metaphysical cosmos to an art that must express the inner moral nature of man's soul. In contrast with Aristotle, Patrizi argues with Plato, Ficino, and Galilei that more than imitation and sensual pleasure should be sought from the arts. Tatarkiewicz (1980, 244) observed that Galilei in his *Dialogo* argued that as in visual art reason and learning are not satisfied simply by the pleasure afforded by looking at things of varying colours and shapes, so in music it is not sufficient simply to take pleasure in beautiful melodies, rhythms, or consonances. Rather, one must always study these in the context of the music-mind interface, seeking to disclose the essence and nature of this interrelationship.

In the second part of the "Deca Disputata", Patrizi formulates a musical aesthetics on the basis of the Neoplatonic doctrine of *furor* as an alternative to

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165 *E spezialmente s'elle sono cantate con maestria, e allora l'armonia de gli stromenti si conformi unisona all'armonia del canto delle parole, esprimenti o duolo, o gioia, od ira, o mansuetudine, o tale altro affetto. Sarà dico allora la cotale armonia conforme alle parole. E se queste sono imitazioni di costumi e di affetti, anche l'armonia lor simile per lo mezzo loro farà imitazione. Ma se le parole sono più tosto simboli, e segnali, e dichiaramenti de'concetti e de'movimenti dell'animo, come di vero sono, e non somiglianze loro, come Aristotile testificò de'gesti e de'colori, l'armonie similmente non somiglianze, ma sprimimenti e dichiaramenti saranno de' costumi e di affetti d'animo, e segnali e indizi de'concetti di lá entro.* DP, DD9, in Patrizi 1969–1971, 2 (1970): 174.

Aristotle's theory of imitation.[166] This had also been a key concept in Ficino's philosophy of music.[167] Patrizi describes the effect of *furor* as follows:

> *Furor*, if inspired by a good god, is able to move nature and to fill the human soul as well as the song;[168] and to embellish [song] and to make art perfect.[169]

In a successful performance of a well-composed song, then, every musical layer as well as every textual one is inspired by divine power.[170] Following Plato in his *Republic* 399a–b, Patrizi had explained in *La città felice* that the Phrygian musical mode in particular is able to excite *furor* in a human being.[171] In this respect, the Dorian mode, associated with temperance and harmonic beauty, and the Phrygian mode are opposites. *Furor* is the very foundation of Patrizi's new musical magic.

On the basis of Patrizi's use of the concept *furor* in his *Della poetica*, Tomlinson (1993, 214) classified him as a traditional Neoplatonic thinker, still deeply immersed, like Ficino, in a magical way of thinking. As a corrective, I argue instead that Patrizi's aesthetics of music may be better characterized as marking a transitional stage between a traditional magical and a modern analytical way of thinking.[172] Whereas Tomlinson argued that "even in this later account 'furor' remained for Patrizi a forceful correspondence to higher beings", I would counter that Patrizi's idea of 'higher beings' in this context fundamentally differs from that presented in Ficino's philosophy.[173] Both may have associated the higher realm of being with a lost musical paradise, but theoretically speaking, the return to this paradise was a real possibility for Ficino, while for Patrizi it was nothing more than a nostalgic dream.

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166 The theory of 'mania eroos' which is summarized by Patrizi in "Del Furore Poetico" originates from Plato's *Phaedrus* 245a–249d. Patrizi's theory of inspiration and *furor* is given in *DP*, DD1, in Patrizi 1969–1971, 2 (1970): 7–37; and *DP*, DA, "Appendice: Discorso delle Diversità de i Furori Poetici" (1553), in Patrizi 1969–1971, 3 (1971): 450–451. For Patrizi's theory of inspiration and *furor*, see Buffet-Mecarelli 2003 and Hathaway 1986, 431–436.

167 See 3.4.2.

168 Given Patrizi's thesis that all poems were song in antiquity and should be sung also in his own time, the term *poema* can also be translated by 'song'.

169 *Il furore, se fù da buona deità inspirato, potè muovere la natura, ed empiere l'anima e'l poema; e ornarlo, e formare l'arte in perfezione.* *DP*, DD1, in Patrizi 1969–1971, 2 (1970): 27.

170 *DP*, DD1, in Patrizi 1969–1971, 2 (1970): 25.

171 See n. 128 above.

172 See Tomlinson 1993, 189–228. This analysis corroborates Tomlinson's theory that 'archeological ambiguity' was a defining characteristic of sixteenth-century Italian poetics.

173 Tomlinson 1993, 214.

Given that *furor*, wonder, and indeterminacy in poetry and music are of fundamental importance for Patrizi, he tries to formulate a theory in which imitation of something known is replaced with the expression of something unknown, which can be associated with the elusive concept of the harmony of the spheres. In order to make the power of wonder the very essence of poetry and song, Patrizi's aesthetics of music is built on this difference between imitation and expression:

> Thus, when the poet retains in his mind an example that resembles no other external thing, he nonetheless can express it with his verses in such a way that another can seem to see it. But expression is not imitation. . . . And as the painter with his colours is able to make a resemblance of things in art or in nature, he is also able to invent things that are present in neither art nor in nature but come from his own fantasy. In the first case, one says that he is an imitator or a copyist, but that is not true in the second case, which is only a matter of the expression of his own fantasy. Likewise, it seems that a poet is able to create an image [of something in the external world] or to express a mental concept which he has created from his inner world, which does not correspond to things artificial, natural, or divine.[174]

Given his belief that the unique expression of the inner self is the intention of art, Patrizi is not able to give a positive definition of 'the expression of the musically marvellous'. The very core of his attack on the Aristotelian concept of imitation lies exactly in the indeterminacy of that concept. A composer, a maker of the marvellous in song, has a duty to create a new reality "to give a thing a form and appearance different from that which it first had, that is, a new or renewed form".[175]

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174 *. . . così il poeta nella sua mente l'esempio havendo il quale a niun'altra cosa di fuori sia simigliante, ed egli nondimeno co'versi suoi, così l'esprime, che paia altrui di vederlo. Ma espressione non è imitazione. . . . E sì come il pittore può, co'suoi colori, rassomigliare cosa di arte o di natura, così puo anche fingervi cosa che né in arte né in natura stata sia, ma da fantasia sua; nella primiera si dirà imitatore o rassomigliatore, ma non già farà tale nella seconda: ma solo l'espressione della sua fantasia. Al pari sembra che il poeta possa e far ritratto simigliante e che sia e possa anco esprimere quelle imaginazioni che dentro di sé egli ha concipute, molte fiate a niuna delle cose o artate o naturali o divine corrispondenti.* DP, DD4, in Patrizi 1969–1971, 2 (1970): 88.

175 *. . . dare ad una casa forma diversa da qualla che havea prima ed apparenza: cìo è una forma nuova, o rinnovata.* DP, DA, in Patrizi 1969–1971, 3 (1971): 361.

This attack on the Aristotelian conception of verisimilitude as the foundation of aesthetics confronts Patrizi with a theoretical difficulty that he cannot fully resolve. On the one hand, the composer or performer of music must express only his inner mental concepts which do not correspond to things in nature or art. On the other hand, the inner world of the musician seems to have assumed a magical quality associated with an inaudible, and therefore to a certain extent ineffable, kind of world harmony. Hence, in expressing his individual musical nature, the musician is expressing and communicating a kind of universal archetypal music, which can be understood by everyone, because every human being in principle is endowed with the same innate mental concepts.

According to Patrizi, a poet or composer of song has a duty to be creative, to refashion reality. Thus, as Weinberg (1961, 2: 773) points out, Patrizi's poetics stands in direct opposition to the accepted Aristotelian poetics of his time, which rested on the belief that poetry must be based on credibility, verisimilitude, possibility, necessity, and truth. Patrizi's poetics and music aesthetics based on indeterminacy, wonder and incredibility can be seen as an attempt to liberate poetry and music from the narrow Aristotelian conception of imitation of physical reality. He is convinced that

> there must be incredible things if the marvellous is to be known from them, because the credible cannot bring about the marvellous. . . . All poetry must have as its object the incredible because this is the true foundation of the marvellous, which must in such wise be the principal object of every poem that any poet who does not attend to it or use it will commit a great error in his art, such as cannot possibly be excused.[176]

Platt (1992, 391) points out that Patrizi was well aware of the fact that a poetics of the incredible could easily turn into a meaningless poetics if there were absolutely no ground in reality. If we extrapolate from the context of Patrizi's poetics to the context of his music aesthetics, we could argue that if a musician could really express himself without any aesthetic boundaries, the 'marvellous' content of his music—which is associated with the music of the spheres—

176 *. . . che fa mestieri di cose incredibili se maraviglia ne dee nascere, perché il credibile, no può operare maraviglia. . . . che la poesia habbia per oggetto lo incredibile, perchè questo è il vero fondamento del maraviglioso, che dee essere così principale oggetto d'ogni poesia, che qual poeta non vi mira, o non l'adopera, commette fallo grandissimo nell'arte sua, no meritevole di niuna escusazione*. Patrizi, DP2, in: Patrizi 1969–1971, 2 (1970): 307. Translation by Platt, 1992 390–391.

could easily turn into something meaningless and, therefore, uncommunicable. In order to escape this problem, Patrizi introduces the power of wonder as a bridging concept in his aesthetics. The power of wonder must guarantee the possibility of transfer of knowledge in musical communication:

> the abovementioned power of wonder is neither rational nor emotional, but rather separate from them both and in the business of communicating between them both; and, placed on the boundary between the two, it is apt to spread and flow, through its movement, swiftly up to the regions of reason and down to those of emotion.[177]

In conclusion, Patrizi opposes Aristotle's idea that music and poetry imitate the reality of external nature. He believes instead that in contrast to the imitation of external nature, mental concepts that are associated with a prelinguistic archetypal music should be expressed in music. Patrizi does not deny that musicians as well as poets are able to imitate or represent things from the external world, but this is not the essence of true art.[178] The essence of music and poetry lies in the possibility of creating something new, of refashioning reality. In order to create a new world, an artist must aim at expressing the 'incredible'. The 'incredible' in its turn is the very foundation of the 'marvellous', a new concept developed by Patrizi to frame the elusive music of the spheres.

5.4.2 *The Marvellous as the Basis for a New Theory of Musical Magic*

As Platt (1992, 387) observes, Patrizi's theory of the wonderful constitutes a striking break with Aristotle's views on imitation and wonder, proposing an alternative that parallels many innovations in the aesthetics of the period. Further developing this line of thought, I will now investigate how Patrizi theorizes about marvellous musical effects.[179] The doctrine of the harmony of the spheres has always been rather elusive and consequently transformative in character. Hence, for Patrizi, who aims at formulating a musical aesthetics based on the

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177 *. . . la ora detta potenza ammirativa nè conoscente sia, nè affettuosa, ma da ambedue separate e ad ambedue communicantesi; e che, posta di quelle in sul confino, sia atta a diffondere, e ad infondere, il moto suo tostamente allo 'n sù nelle conoscenti, e allo in giù nelle affettuose.* DP, DA, in 1969–1971, 2 (1970): 361–362; trans. Platt 1992, 391.

178 DP, DD7, in Patrizi 1969–1971, 2 (1970): 135.

179 For the theory of the wonderful effects of music in the context of the birth of the opera at the end of the sixteenth century, especially in the interludes of the play La Pellegrina, see, e.g., Walker 1985, 133–144; and Treadwell 2007.

concepts of wonder and indeterminacy, the traditional doctrine of the harmony of the spheres functions as an ideal point of departure. As I will argue in this section, Patrizi makes use of a whole web of associations related to this ancient doctrine to confer meaning on his newly formulated music-theoretical concepts.

Since Patrizi never explicitly linked his theory of the 'marvellous' with music, this part of his aesthetics must be reconstructed in order to understand how the musical magic of Ficino's metaphysical cosmos can be transferred to the inner world of man. Patrizi's theory of wonder has particular relevance for the performance practices of late sixteenth-century music, in which new kinds of musical wonder are invented, requiring increased interaction with an audience.[180]

When, after years as an independent scholar, Patrizi was finally appointed professor in Platonic studies at the University of Ferrara, he found himself in one of the most prominent musical centres of Italy: the Ferrarese court. Here he became acquainted with the famous singer Tarquinia Molza, who was attached to the court as a professional musician.[181] Her performance practice is recorded in Patrizi's *L'amorosa filosofia*, the philosophical treatise which, as discussed above at 5.2.1, is written in a tradition of love treatises inspired by Plato's *Symposium*.[182] As Cassirer (1963, 131) and many scholars after him have noted, the doctrine of Eros, which is the actual pivot of Ficino's psychology, became the central point of many philosophical efforts of the late sixteenth-century Italian academies, including Patrizi's treatise. In particular, Patrizi follows Ficino's *De amore* (*On Love*), which, in contrast with Plato's *Symposium*, gives music a prominent place.[183] The similarities between the two love treatises facilitate a further comparison between Ficino's ideas on the relationship of love, cosmic harmony, and earthly music and those of Patrizi. I will argue that such a comparison provides compelling evidence of a transformation of the doctrine of the harmony of the spheres. This discussion aims at bridging and supplementing Vasoli's (1983; 1988; and 1989, 181–204) philosophical and Stras's (1999) musicological analysis of *L'amorosa filosofia*.

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180 See Fubini 1990, 116ff.

181 For the place of Tarquinia Molza in sixteenth-century Italy, see the historical biographies of Pietro Paolo di Ribera (1606) and Vandelli (1750); for a modern biography, see Riley 1980 and 1984–1985. For La Molza's library, see Ferri 1842; and di Pietro 1973.

182 The first dialogue of the treatise reports a gathering in the style of Plato's *Symposium* held at the house of Patrizio Patrizi in Rome, probably in the autumn of 1576.

183 Patrizi studied Ficino's *De amore*, in which love and music are also dealt with as two expressions of cosmic harmony. For Ficino's theory of love and harmony, see Ficino 1985 and 2006, discussed at 3.4.1 and 5.2.1.

In Plato's *Symposium* Diotima declared that if man uses the image of an attractive person or the hearing of beautiful music as a step in the process of spiritual growth, love and music may have a function in the search for absolute beauty.[184] Ficino, having followed Plato in his *De amore* III in defining 'love' in terms of desire for beauty, had difficulty in allocating human erotic love a place in his metaphysics of love. In contrast with Ficino's theory of love, Patrizi's *L'amorosa filosofia* tries to formulate a theory of love in which human erotic love is assigned a constructive function in the search for absolute beauty in music. The liberation of human erotic love is reflected in his discussion of earthly love songs. Whereas Ficino was mainly interested in religious odes, for example, the Orphic hymns, Patrizi looks for an echo of the music of the spheres in love songs about impossible, absent, or lost love, preferably sung by an unattainable lady.

Much of what is known of Tarquinia Molza's musical performances is drawn from Patrizi's ode to her, written after he taught her philosophy and Greek.[185] *L'amorosa filosofia* consists of four dialogues, all concerning La Molza, who acts in the treatise as Patrizi's muse for the exposition of a new philosophy of love and transporting musical experiences. The first dialogue is a series of nine orations from a group of musicians, poets, clerics, and gentlemen, praising La Molza's many virtues and accomplishments.[186] Patrizi's theory of a new musical magic, in which the human voice is able to express cosmic harmony, appears in the first dialogue.

In this first dialogue, each of the interlocutors compares La Molza to one of the Nine Muses, presenting her as the most lovable human being: an example of intelligence, musicality, and beauty, familiar with the classics and learned in all the liberal arts, the mathematical disciplines as well as the physical sciences. In imitation of Ficino's astrological and magical music theories, in this part of the treatise Patrizi attributes great importance to Tarquinia's horoscope: in his explanation of her musical skills he notes that she was born in an astrologically beneficial moment. Her ability to express a kind of hidden knowledge about the universe is explained as an innate talent. She is one of the chosen whom God has endowed with the key to the universe. The organization of the

184 *Symposium* 204d–209e.

185 Patrizi's letters to Tarquinia Molza, which contain a detailed explanation of the cosmos, are published in Patrizi 1975, 13–22.

186 The first dialogue takes up nearly half of the manuscript. The second and third dialogues are conversations between Patrizi and La Molza about love. The fourth, left unfinished, is an exchange between La Molza and her husband, Paolo Porrino, on the nature of marriage.

orations in the first dialogue of *L'amorosa filosofia* is modelled on traditional schemes of cosmic correspondences, especially that of Ficino, whom Patrizi tries to emulate (table 5.1).[187]

Unlike Ficino, Patrizi is not interested in the specific character of the music of individual planets, and in his philosophy he nowhere specifies the correspondence between planetary and earthly music.[188] He still makes use of a scheme of cosmic correspondences between planets, Muses, and human arts and sciences, but from the free adaptation of this traditional scheme, we may conclude that it is used for rhetorical, rather than philosophical, reasons. Whereas Ficino truly believed in the possibility of musical astrology, Patrizi's description of the passage of Tarquinia Molza's soul through the planetary spheres before incarnation in her body seems to be present only to provide a metaphorical explanation for her musical talent.

TABLE 5.1 *The organization of the nine orations in the first dialogue of Patrizi's* L'amorosa filosofia (*based on the reconstruction of Pastina and Crayton in Patrizi 2003, 15*).

Sphere	Muse	Attribute of Muse (traditional)	Attribute of Muse (Patrizi)
(1) Moon	Thalia	comedy	birth, germination
(2) Mercury	Euterpe	music	interpretative skills
(3) Venus	Erato	love poetry	mating
(4) Sun	Melpomene	tragedy	auditory pleasures
(5) Mars	Clio	history	glory
(6) Jupiter	Terpsichore	dancing	visual pleasures
(7) Saturn	Polyhymnia	sacred poetry	memory
(8) Stars	Urania	astrology	heavens
(9) Heaven	Calliope	epic poetry	divine things, politics

187 For Ficino's scheme of cosmic harmonic correspondences, see 2.5.3, table 2.1.

188 Patrizi expresses himself in the conservative seventh oration, in which he sings the praises of Tarquinia's intellect. His speech addresses the influence of Saturn on the character of his muse: given the fact that this planet is traditionally linked with religious poetry, this is a relatively safe point of view to express during the Counter-Reformation. Against the backdrop of the Counter-Reformation, moreover, it is interesting to notice that Patrizi attributes to Calliope, the Muse of the highest heaven, the attributes 'Divine Things' as well as 'Politics'.

Patrizi renounces providing a precise theory of a human soul dressed in an ethereal vehicle, which during the descent from the planetary spheres is imprinted with planetary gifts.[189] In his own theory of a new kind of musical magic, Patrizi chiefly makes metaphorical use of the correspondences used in Ficino's magical and astrological music theory. In rhetorical superlatives, Patrizi sings, for example, the praise of Tarquinia Molza's supernatural musical talent:

> Just as all things down here derive from up there, so I cannot believe that in the Creation of that ethereal vehicle which the most divine soul of Lady Tarquinia chose for its garment in its descent to us, only one or two stars took part, but [I believe] that all of them—as many as there are in the heavens—each competing with the others, infused not only a part of their gifts but the whole, and not the inferior or least precious but [rather] the greatest and most excellent gifts.[190]

Before birth, Tarquinia's soul experienced a major influence from Saturn, traditionally associated with knowledge and wisdom.[191] Furthermore, the Muse Urania, who in the sphere of the fixed stars rules over all motion of the stars and thereby guarantees a harmonic relationship between the macrocosm and the microcosm, has had an overwhelming influence on La Molza. Therefore, her whole being, including her musical talent, can be understood as a perfect 'imitation' of the harmonic design according to which the Creator has made the planetary spheres.[192] Furthermore, she is a perfect human being, because female and male characteristics are in harmony in her.[193] This metaphorical explanation of Tarquinia's talent is accompanied by an explanation

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189 For Ficino's theory of the ethereal vehicle, see 3.5.3.

190 *Et sì come tutte le cose di qua giù di lasù derivano, così non mi posso io dare a credere che nella formatione di quell'etereo vehicolo, che per sua vesta nella discesa a noi prese la divinissima anima della signora Tarquinia, concorressero non una stella o due, ma tuttutte quanto sono nel cielo, et a gara l'una dell'altra volle ogni una inforderle non parte de'suoi doni, ma tutti, et non li minori o que' di minor pregio, ma i maggiori et i più eccelen*[*ti*]. AF, in Patrizi 1963, 69; translation modified Patrizi 2003, 97.

191 See Klibansky et al. 1964, 209–214, 254–274.

192 See Patrizi 1963, 19.

193 The chapter of Vasoli's biography dedicated to *L'amorosa filosofia* discusses Patrizi's projection of the Hermetic ideal of an androgynous being onto Tarquinia Molza. Here, he explains that Patrizi argues that Tarquinia has been blessed with infertility, because without having to care for children, she is able to develop both male and female aspects of her personality in perfect harmony. See Vasoli 1989, 188.

of her talent in sixteenth-century naturalistic terms of inheritance: "And you will find confirmation of what the major philosophers wrote: that, at sundry times, celestial influences, transfused into a man or woman, may pass with equal vigour into their children and grandchildren, through a long series of descendants".[194] So it remains unclear whether the origin of Tarquinia's musical talent is supernatural or natural.

In order to underline the exceptional character of Tarquinia's musical talent, Patrizi contrasts her divine musical gifts with acquired musical skills:

> She [Tarquinia] does so many things, and does them so well, not simply through practice, nor because they were all shown to her by her teachers—the way it has happened to women who sing nowadays and who have sung a little—but because of the infinitely marvellous ear that she has, an ear with which she hears every smallest defect or perfection, and because of the thorough understanding of counterpoint she possesses. A testimony to this is the counterpoint I saw made by her on "Anchor che col partire" ["Though in departing"], the famous madrigal by Cipriano [de Rore].[195] From this it follows that she grasps all three kinds of music [i.e., diatonic, chromatic, and enharmonic][196] to the highest degree and all three modes of singing: the Italian, Spanish, and French. When she produces the liveliness, the speed, and the volume of the French and the languishing sweetness of the Spanish and the firmness and moderation of all of the Italian modes, she always makes use, in all of them, of all her excellences mentioned above, to the wonder and amazement of those who are truly knowledgeable.[197]

194 *Et si confermeranno in ciò che scritto hanno i principi de'filosofi, trovarsi alle fiate gli influssi celesti trasfusi in alcun huomo o donna, passare ne'figliuoli e ne'nipoti per lungo ordine di discendenza nello stesso vigore.* AF, in Patrizi 1963, 15.

195 For an analysis of the madrigal "Anchor che col partire" in the setting of Cipriano de Rore, see Lockwood 1992; and Feldman 1995, 293–294.

196 For the theory of the three tetrachord-species (subdivision of the diatessaron, i.e., the interval of a fourth), see 4.3.2.

197 *Et tante cose et in tanta eccellenza fa ella non per pura prattica, nè perchè tutte le siano state da' suoi maestri mostre, come alle donne che hoggi dì cantano et di poco hanno cantato è avvenuto; ma da una maravigliosa oltre modo orecchia che ella ha, con la quale sente ogni minutissimo e diffetto et eccellenza, e da una compiuta intelligenza di contrapunto che ella possiede. Di che fa testimonio un contrapunto che io vidi fatto da lei sopra «Ancorchè col partire» madrigale famoso di Cipriano. Donde viene che ella possega ottimamente tutti e' tre generi della musica, et i tre modi di cantare, italiano, spagnuolo e francese. Nè fa la vivezza e la velocità e lo streppito di questo, nè la dolcezza languida dello spagnuolo, nè la sodezza*

The eternal harmonic laws of the universe are now associated with the innate harmonic patterns of the human soul, which are known only to elect people like Tarquinia who possess an 'infinitely marvellous ear'. In this description of La Molza's musicality, a transformation in traditional ideas of world harmony manifests itself: the essence of her musical knowledge is not the knowledge of the harmonic design of the planetary spheres—the very foundation of the Pythagorean tuning system—but the knowledge of the diatonic, chromatic, and enharmonic species as formulated by Aristoxenus, of which the first was used as the foundation of 'modern' tonality and equal temperament (i.e., the tuning system which emerged at the end of the sixteenth century).[198] Moreover, her talent lies not in the exact intonation of the melodic consonances but in her capacity to inflect and tune them according to the speech patterns of different languages and to the emotional and intellectual concepts expressed in them. As observed by Stras (1999, 373), we must be aware that when Patrizi praises La Molza for the counterpoint he saw her make, he alludes not to her knowledge of counterpoint rules as such but to her ability to improvise an embellished treble on top of an existing polyphonic madrigal.

Following Ficino, Patrizi attributes to music a central place in the first dialogue of *L'amorosa filosofia*: in the fourth of the nine orations La Molza's unparalleled abilities as a musician are coupled with the Sun, traditionally associated with the most noble and harmonizing Dorian mode. This oration is dedicated to the attribute of 'auditory pleasure' belonging to the Muse Melpomene. In his invocation of this Muse, the musician Fabrizio Dentice, who is given the difficult task of translating La Molza's magical performances into words, falls back on traditional vocabulary:[199]

> help me [Melpomene], and make me feel enough of it in my veins so that in clear and straightforward words I may make known how much celestial—or, rather, more than supercelestial—harmony you inspired in her [i.e., Tarquinia's] breast; and how you decided to make your power known to the world when you gave shape to her breast, throat, palate, tongue, and lips through which her voice [issues] with such sweetness, with such beauty, and with such gracefulness. Its equal does not exist in any place under the Moon, but in your heaven alone, not in you [Melpomene] nor

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e la misura di tutti e' modi dello italiano, chè ella in tutti non adopre tutte le eccellenze sue sopranarrate, con maraviglia e stupore di ogni huomo intendentissimo. AF, in Patrizi 1963, 40–41; translation modified from Patrizi 2003, 68–69.

198 For Patrizi's adoption of Aristoxenian principles of tuning and temperament, see 4.3.2.

199 Fabrizio Dentice was a Neapolitan musician resident at the Farnese court in the late 1560s.

> in Phoebus, your brother, who are the gods of harmony, nor in any idea that was ever heard.[200]

In the last oration of the first part of the dialogue, Benedetto Manzuolo is given the most difficult task of elucidating further how La Molza's musical performances exemplify the harmony of the spheres. This oration, which is dedicated to the Muse Calliope, is associated with the Empyrean and deals with the synthesis of all virtues.[201] The synthesis of La Molza's virtues amounts to something that transcends daily experience and language. Her unsurpassed musicality can best be grasped by the indeterminate traditional concept of an echo of the music of the spheres. In the way Patrizi retells Plato's myth of Er in this oration, the transformation in the doctrine of the harmony of the spheres I have mentioned above manifests itself in a more distinct way.[202] He uses a rhetorical strategy to present his own interpretation of La Molza's musical magic as fully in line with traditional ideas about the music of the spheres:

> She [i.e., Calliope, the Muse of this oration] tells me that she is unaware of having taught or revealed to the divine Plato that out of necessity her sisters were each distributed according to the order of the heavens with the possible exception of just one: Urania, the first Muse after herself, to whom alone was entrusted the governing of all the celestial motions and their harmony, in a general way. She is unaware that Plato ever stated or hinted at that in any of his writings. She did tell him that on the basis of their number, eight Sirens were assigned to the celestial spheres, and that their delightful singing was tuned to the ineffable harmony of the spheres by Urania's reason.[203]

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200 *. . . aiutami, et fa che io ne senta nelle mie vene tanto quanto basti, in piano e schietto parlare, fare apparere quanta celeste, anzi quanta sopraceleste, armonia infondesti nel petto suo, et come volesti fare al mondo conoscere la tua potenza in formando il petto, la gola, il palato, la lingua e le labbra sue, per le quali con tanta dolcezza, con tanta vaghezza, con tanta leggiadria dovesse una voce, pari alla quale non in alcun luogo sotto la luna, ma pur nel tuo cielo, non in te, non in Febo fratello tuo, che dei siete dell'armonia, non in alcuna idea fu udita giamai.* AF, in Patrizi 1963, 37; translation modified from Patrizi 2003, 65.

201 Calliope is traditionally linked either to the planet Mercury, as in Gaffurius, or, more importantly, to the World-Soul and thus to the primum mobile, as in Ficino. In Ficino's philosophy, Calliope is the Muse of hearing, while Urania is the Muse of sight. See Allen 1984a, 29–30, 133–134.

202 For Ficino's reception of the myth of Er, see 2.5.3.

203 *La quale mi dice che ella non sa di havere insegnato nè rivelato a Platone divino che le sorelle sue fussero dalla necessità distribuite per l'ordine de'cieli, fuorchè forse una sola, la prima dopo sè la Urania, alla quale sola essere stato raccomandata la governatione de'movimenti*

Thus, the Muse Calliope is said to confide to Patrizi—using Manzuolo as a medium—something about cosmic harmony that had not been revealed to Plato. In a traditional treatment of the harmony of the spheres, it would have made more sense to address the topic of cosmic harmony in the eighth oration—dedicated to the Muse Urania and associated with the stars and astrology. Presumably, Patrizi deals with this topic in the ninth oration—dedicated to the Muse Calliope and the highest heavens—because it fits his own interpretation. Yet the traditional function of the concept of the harmony of the spheres in this new interpretation remains fully intact: earthly music is not an imitation of celestial music, but Patrizi projects his new ideas about earthly music onto the heavens to give the music of his time an indeterminate and marvellous power.

In addition to Plato's myth of Er, Patrizi refers to Cicero's *Dream of Scipio* to explain why the supernatural dimension of Tarquinia's musical performances is not noticed by all people. In the context of his aesthetics of music, the concepts of the inner sense of hearing reappears, although he dispensed with it in his naturalistic explanation of the sense of hearing in *De humana philosophia* (discussed above at 5.2.3). Thus, it seems that even if Patrizi no longer believes in the literal existence of the harmony of the spheres, he nonetheless uses the concept to describe the magical power of Tarquinia's voice in terms of an echo of heavenly music:

> Nothing but the weakest echo of this harmony reaches human ears down here on Earth. This does not enter into the souls of all men, of whom the majority have lost their hearing as [have those] at the highest falls on the Nile, at the cataracts of their passions and material desires, but it enters only the souls of those whose ears are so purified that they derive a most sweet delight from it, since nothing in this world down here but the harmony of this ninth Siren of ours—or, rather, of all those Sirens united with her—can compare to it. Or rather, she [i.e., Tarquinia Molza] so diverts them from their lowly thoughts that, as if their bodies had become like senseless stones, their souls drift behind them and give themselves up to the contemplation of their music, music with which this elemental

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celesti et l'armonia loro, così in generale; nè sapere che Platone in alcun luogo degli scritti suoi l'habbia affermato nè accennato; ma bene havergli detto che alle sfere celesti secondo il numero loro erano sopraposte otto sirene, il cui soavissimo canto a la ineffabile harmonia loro era temprato dal senno della Urania. AF, in Patrizi 1963, 71; translation modified from Patrizi 2003, 99.

> world lives and sustains itself, for scarcely another sensual fruit can be derived from it.[204]

Patrizi refers in this passage to the parable of the cataracts of the Nile from Cicero's *Dream of Scipio*. Cicero describes Scipio hearing the music of the spheres in the heavens and tells us that the ears of men "overcharged with this sound have grown deaf to it", which reminds him of an African tribe living close to the roaring cataracts of the upper Nile who have become, by this circumstance, completely deaf to their sound.[205] The inaudible music of the spheres, situated by Ficino in the macrocosm, is shifted to the realm of the inner world of Patrizi's Muse, who is presented as an exception to the rule of the hearing deaf. In her ability to make her earthly music an echo of divine cosmic music, La Molza is the expression par excellence of heavenly harmony. She is a microcosm, but rather than reflect the exterior macrocosm of the late sixteenth century she reflects the lost paradise of perfect harmony which was still a reality for Ficino:

> Some of these contemplative philosophers have related to us that these Sirens are the same as the Muses. They derive the name 'Muses' from the concept of contemplation and from the search for an understanding of the truth and of the essence of the first essences, and of the other essences that depend on the first ones. They derive the name 'Sirens' from the concatenation of harmony with which they tie the causes of things together and give to the whole world such a marvellous order. When we consider these things and the excellence of our Muse [i.e., Tarquinia], we can truly say that she is a perfect little world, adorned with all the celestial, supracelestial, and even elemental harmonies, which, being a concord within her and being offered to others as concordant, create a harmony that is

204 *Della quale harmonia non perviene agli orecchi humani qui giuso più che una debolissima quasi echo. La quale entra negli animi non già di tutti gli huomini, de' quali la maggior parte al cadere altissimo del Nilo, alla catadupa delle loro passioni et materiali affetti, hanno assordato l'udito; ma di que'solamente che l'orecchie hanno alcun tanto purgate et ne gustano un diletto soavissimo, chè fuor che l'armonia di questa* [*n*]*ona nostra sirena—anzi di tutte quelle sirene raccolte in questa—niuna altra di questo mondo qua giuso se le può porre in paragone; anzi sì gli travia da questi bassi pensieri che quasi insensibili pietre divenuti col corpo, con l'animo dietro a loro si disviano, et alla contemplatione della loro musica con la quale questo elementale mondo vive et si sostenta, si danno, chè poco altro frutto sensuale se ne può trarre.* AF, in Patrizi 1963, 71–72; translation modified from Patrizi 2003, 99–100.

205 Cicero 1928, 273ff.

> not like the one that these gentlemen [in the eight preceding orations] have described but is like the one they intended and tried to describe, for the matter greatly surpasses both their work and mine.[206]

La Molza's understanding of the perfect harmony with which the causes of things are tied together "and give to the whole world such a marvellous order" has nothing to do with the traditional knowledge of the quadrivium. On the contrary, the way in which she is a "veritable composite of all Muses" exemplifies the renewed order and content of the sciences and arts at the end of the sixteenth century.[207] Hence, La Molza is praised for recalling during her musical performances a lost paradise buried deep within the human soul. In addition, her "angelic voice" is associated not only with auditory pleasures but also with the evocation and reinforcement of moral ethos: it must remind men on Earth of their task to make themselves better people and the world a better place in which to live. Through contemplation of loved ones as well as through music, man is able to transcend the boundaries and constraints of earthly life, including the *condition humaine* of being hearingly deaf:

> If men could have a veritable portrait and example of how much good is contained in the high and low [spheres of] the other world by contemplating just this one person, and by loving her and trying to resemble her, and by honouring, worshipping, and serving her, they would become worthy of coming as close as possible to their own bliss whenever that time may be.[208]

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206 *Alcuni de' quali di cotesti contemplatori hannoci riferito quelle sirene essere lo stesso che le muse, sortend*[*o*] *delle nome di muse dalla contemplatione e dal cercamento di intendere la verità e la essenza delle prime essenze, e dell'altre pendenti dalle prime, et il nome da "sirene", dal concatenamento dell'armonia con la quale legano le cagioni delle cose et danno al mondo tutto ordine tanto maraviglioso. Il che considerando noi et considerando l'eccellenza della nostra musa, possiamo col vero dire che ella sia un perfettissimo picciol mondo, ornato di tutte l'harmonie celesti et sopracelesti et anco elementali, le quali et in se stessa concordando et verso altri porgendo concordate, ne fanno un concento, non quale questi signori hanno espresso, ma quale hanno desiderato et tentato di esprimere, sovverchiando la materia di gran lunga l'opra loro e la mia.* AF, in Patrizi 1963, 72; translation modified from Patrizi 2003, 100.

207 AF, in Patrizi 1963, 72–73.

208 *. . . perchè gli huomini, in questa sola mirando, havessero un vero ritratto et uno essempio di quanto bene in tutto l'altro mondo et basso et alto è rinchiuso; et lei amando et lei tentando di rassomigiliare et lei honorando et riverendo et servendo, meritassero di porsi quando che sia*

In order to communicate ethical values, the music created and performed by inspired musicians has to be vocal music, modelled after ideas about ancient Greek monodic music. Only then, as Rinaldi (2001, 62) details in reference to Empedocles's cosmogonic poem, can a song genuinely become a microcosm.

Although we will never be able fully to reconstruct the performance practice of sixteenth-century madrigals, Patrizi's descriptions of special aesthetic experiences create a reasonably clear picture of the magic of La Molza's execution. From Patrizi's text as well as descriptions of her musical art in other sources, we can see that Tarquinia Molza must have been a virtuosic and expressive singer, able to inspire transporting musical experiences, of which the ineffable content rained down on the souls of the listeners as if it were the harmony of the spheres (fig. 5.6).[209] Just as the music of the spheres is made up of the heavenly song of the Muses:

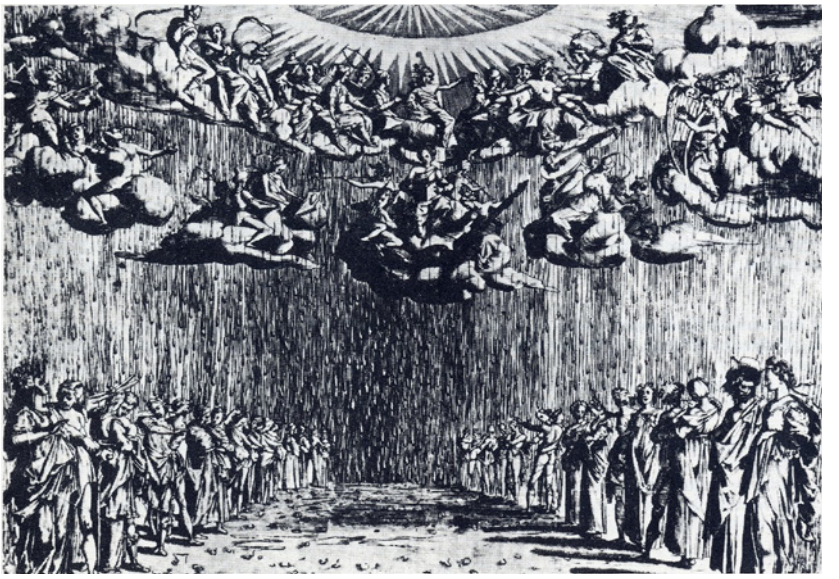

FIGURE 5.6 *Epifanio d'Alfiano's "The descent of Harmony and Rhythm" in the sixth* intermedio *of La Pellegrina, composed for the wedding of Ferdinand de' Medici and Princess Christine of Lorraine, 1589.*

il più vicino che potessero alla loro felicità. AF, in Patrizi 1963, 74; translation modified from Patrizi 2003, 102.

209 Epifanio d'Alfiano's "The descent of Harmony and Rhythm" in the sixth *intermedio* of La Pellegrina is printed with the kind permission of the Civica Raccolta delle Stampe Achille Bertarelli, Castello Sforzesco, Milan.

> one could say that the sweetness of her angelic voice is moved by many divinities, as it were, that are in her spirit, throat, tongue, and lips; and through them, virtue rains on our souls whence thoughts, acts, and words are continually created, and this produces in us a sweet, constantly changing springtime.[210]

To recapitulate, in Patrizi's aesthetics, music is founded in a metaphysical world which resembles Ficino's metaphysical view of world harmony. But this similarity is only superficial: Patrizi's metaphysical world is the inner world of the human soul of a musician or listener, which as *musica humana* is only loosely connected to the *musica mundana* of the macrocosm. If, moreover, a composer creates a song, or if a musician performs a song, they do not imitate a part of external nature but rather express a mental concept of their internal nature which need not necessarily correspond to something in the external world.

In Patrizi's *L'amorosa filosofia* Tarquinia's music represents a vestige of a supernatural world, and by listening to her, her audience truly can experience the feeling of being transported. But whereas Ficino's holistic view of the cosmos made it theoretically possible to move freely up and down the different spheres of the cosmos and to reach a true home during a spiritual musical journey, such a 'literal' musical ecstasy is theoretically impossible in Patrizi's dichotomized cosmos. In his philosophy the feeling of being one with the cosmos is possible only in a metaphorical way. This is expressed in the passage cited above, where people in the audience can only come "as close as possible to their own bliss whenever that time may be".[211]

The theoretical decrease of musical-magical possibilities occasioned by Patrizi's demolition of a cosmic network of correspondences is counterbalanced in his music aesthetics by the new theoretical possibilities offered by his dichotomized view of the world. By removing the human soul from the World-Soul, a new kind of yearning for a lost paradise is introduced into Patrizi's philosophy: the desire of the human soul to be reunited with the World-Soul again. In contrast to Ficino, Patrizi is mainly interested in the transporting qualities of secular music. The transformation of the doctrine of the music of the spheres appears most strongly in Patrizi's interest in technical, musical and rhetorical devices, which can be used to create an experience of the harmony

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210 *. . . così ella con la soavità della sua voce angelica, mossa da tante, si può dire, deità che sono nello spirito, nella gola, nella lingua e nelle labbra sue, onde piove negli animi nostra virtù, onde si crieno sempre pensieri atti e parole, che in noi fanno una vaga e dolce primavera.* AF, in Patrizi 1963, 36; translation modified from Patrizi 2003, 65.

211 See n. 208.

of the spheres. The rhetorical, as well as psychological, effects which, according to Patrizi, are to be used in music to produce an experience of perfect harmony illustrate an instrumental view of music that emerges at the end of the sixteenth century in Italy. As Tomlinson (1999, 24–26) points out, Patrizi's ideas on vocal music were fully in line with the development of a new musical magic in the birth of opera.

5.4.3 *The Harmony of the Spheres as Experience of the Musical Sublime*

Vickers (1988, 740) correctly observed that Patrizi's "La Deca Ammirabile" ("Ten Books about the Marvellous")—included in the second volume of *Della poetica*—investigates the ways in which the marvellous can be produced in the reader's mind, an account that seems remarkably like a return to rhetoric in its concern with the effect of the work of art on the audience. Tatarkiewicz (1980, 244) explained that Vincenzo Galilei's *Dialogo della musica antica et moderna* argued that whenever a musician fails to transport the mind of his hearers, his skill and knowledge must be acknowledged to be empty and vain, for music was created and included in the liberal arts for no other purpose than arousing wonder.[212] It could very well be the case that Galilei has again served as Patrizi's source for his theory of the musically wonderful. Even so, I will argue that, against the revival of Aristotelian aesthetics in the sixteenth century, Patrizi's musical aesthetics, based on a wondrous state in between reason and emotion and associated with the harmony of the spheres, is quite unique in sixteenth-century theories about music.

By rooting itself in the concept of the 'marvellous', Patrizi's theory refers back to Pseudo-Longinus, the only predecessor who, in his *On the Sublime*, a work that (as demonstrated by Weinberg, Hathaway, Vasoli, and Platt) Patrizi certainly studied, explored the concept of 'wonder' in such terms.[213] Longinus based this treatise on the tenet that "the Sublime is a certain eminence or perfection of language" and that its effect "is not to persuade the audience but rather to transport them out of themselves".[214]

To my knowledge there has been barely any treatment of the musical sublime in the sixteenth century.[215] In the discipline of musicology the sublime is

212 Galilei 2003, 351.

213 For Patrizi's use of the concept of the 'sublime' and its influence on his poetics, see Hathaway 1962, 69ff.; Platt 1992; Vasoli 1983; and Weinberg 1961, 2: 784–785.

214 Pseudo-Longinus, *On the Sublime* 1.3–4, in Longinus 1995, 162–163.

215 Because Patrizi's discussion of *On the Sublime* is not dealt with in recent literature concerning its reception history (such as Matelli 2007; and Costelloe 2012), it will be analysed here.

mainly treated as an important aesthetic category in the eighteenth and nineteenth centuries. My reconstruction of Patrizi's ideas on the sixteenth-century madrigal in relation to the category of the sublime is a first step in the investigation of early modern uses of the sublime in the context of an aesthetics of music. In this section I will investigate further whether the concept of the musical sublime can be associated with the tradition of the harmony of the spheres. In doing so, I will be building on and further developing the discussion of Patrizi's use of the concept of the sublime in the context of his poetics.

Following Longinus, Patrizi advocates for sixteenth-century vocalists a musical form of rhetorical embellishments and unexpected emotional outbursts that, because of their expressive and wonderful nature, have the power to take the audience "out of themselves".[216] The marvellous in Patrizi's aesthetics of music exists in a state separate from what is convincing and what is pleasing. Finally, for Patrizi's aesthetics Longinus's concept of wondrous 'transport' is fundamental, because it offers a theoretical alternative to Aristotle's concepts of rational persuasion and imitation of things in the external world. Patrizi, moreover, takes the concept of the marvellous, which is aesthetically independent of, and superior to, reason, as the foundation for a new theory of musical magic.

Patrizi understands the musical sublime in two different ways, both borrowed from Longinus. In the first sense it is treated in a traditional way as an aspect of rhetoric. According to this view, the sublime is that which is raised up above the ordinary, that which is grand, majestic, 'high' in style. In the second sense he deals with it as a psychological phenomenon. In both respects, Patrizi is following Longinus, who defined the 'sublime' for the first time in these terms.[217] According to Patrizi, the sublime in art is

> something new and sudden and unexpected which appears before us, creates a movement in our soul, almost contradictory in itself, of believing and not believing: of believing because the thing is seen to exist; and

216 Patrizi used the following passages in *On the Sublime*: 1.4, 15.2, 15.9, 35.5, and 36.3. Patrizi cites Longinus five times in his *Della poetica*, and two of these references are in "La Deca Ammirabile". See Patrizi, *DP*, DD, in Patrizi 1969–1971, 2: (1970) 265, 304, 324; and *DP*, DA, in Patrizi 1969–1971, 3 (1971): 367, 387. See Platt 1992, 387–388.

217 Pseudo-Longinus, *On the Sublime* 1.3–4, in Longinus 1995, 163.

> of not believing because it is sudden, new, and neither experienced or known by us before nor imagined or believed that it could be true.[218]

In his attempt to define the essence of Tarquinia's musical talent, Patrizi makes it quite clear that it is not her technical skill at musical ornamentation, which, while superior, is not uncommon among trained singers. So far as Patrizi is concerned, it is not her ability that makes her exceptional but her intelligence, sensitivity, musicality, and learning. Tarquinia's musical talent exists above all in her ability to express mental concepts and emotions. In Patrizi's connection between the sublime and vocal music, a sense of the sublime is situated on the boundary between aesthetics and psychology. It represents a turn away from the everyday towards inexpressible transcendental experience.

Patrizi makes a clear distinction between the sublime and the beautiful. For him, ordinary beauty in song is connected with symmetry and form, and as such it is pleasurable but limited. Whereas for Ficino world harmony was connected with orderliness and the beautiful, for Patrizi it is connected with the expression of the immeasurable sublime. The beautiful is the musical level which can be reached by almost "all women who sing nowadays in the way that is shown by their teachers".[219]

By contrast, Tarquinia's musical performances are a source of the sublime because they are able to fill a listener completely with amazement rather than with something beautiful. Patrizi reports that because La Molza sang "to the wonder and amazement of those who are truly knowledgeable", he himself was transported into higher spheres.[220] He explains that during her performances the mind of a listener is so filled with the musical object of song that it cannot entertain anything else. The feeling of being possessed by music gives the listener the feeling of amazement, because for a moment he transcends his everyday experience.

Now, let us turn to the sublime in Patrizi's description of La Molza's performance of a few famous madrigals of the sixteenth century. Given that Patrizi supplies his readers with a great deal of detailed information about her

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218 *. . . adunque nuova, e subita, e improvvisa, che ci si pari avanti, fa un movimento nell'anima, quasi contrario in sè medesimo, di credere e di non credere. Di credere, perchè la cosa si vede essere; e di non credere, perchè ella è improvisa, e nuova, e non più da noi stata nè conosciuta, nè pensata, nè creduta poter essere.* DP, DD, in Patrizi 1969–1971, 2 (1970): 365; translation modified from Platt 1992, 391.

219 See above n. 197.

220 *AF*, in Patrizi 1963, 41; translation modified from Patrizi 2003, 69. Quoted above in n. 197.

musical practice, it is possible to investigate the way in which she endeavoured to transport her audience. Much of the more detailed information about the earthly aspects of Tarquinia Molza's musical performance is offered by Fabrizio Dentice in the fourth oration of the first dialogue of *L'amorosa filosofia*. In a long passage, he discusses the differences in techniques and timbre between La Molza's voice and that of the Spanish castrato Hernando Bustamente, one of the finest castrati in Italy.[221] Though La Molza's female voice is less powerful than Bustamente's, Dentice prefers it because of its unsurpassed power of expression.

Although La Molza's voice is equally developed in all registers, she does not, or cannot, conceal the timbral differences between her chest and head voices, but she has a remarkable ability to inflect the intonation of accidentals. Furthermore, she is able to negotiate with ease the embellishments on one syllable, the so-called diminutions or *accenti* or *passaggi* which were a very important means of expressivity in the musical rhetoric of the second half of the sixteenth century.[222] More than once, Patrizi uses the term 'angelic' to describe her voice, a clear reference to the angelic song which was attributed by the Christian Middle Ages to the tradition of the harmony of the spheres:[223]

> So her voice is a soprano, not dark, not suppressed, not forced, but very clear, open, very delicate, soft, even, very sweet; in sum, if one may say it without sinning, more than angelic. . . . I have not seen nor heard any singer nowadays who can come close to her, neither in the aforesaid elements of the beauty of her voice nor in the discretion and judgement with which she carries it.[224]

The extraordinary musical power lies in the beauty of her voice combined with a kind of intuitive musical knowledge that enables her to express and to communicate mental concepts. Thanks to her innate musical talent, she is able to communicate her inner world to her audience. The listeners are transported

221 Bustamente was a member of Alfonso II's household and so may have been one of the musicians humbled by La Molza's virtuoso performance of madrigals. See Stras 1999, 361.

222 Stras 1999, 374. For an introduction to the art of embellishing sixteenth-century music, see Brown 1976.

223 For Ficino's reception of medieval ideas about angelic song, see 2.5.3.

224 *La voce adunque sua è un soprano non fosco, non soppresso, non sforzato, ma chiarissimo, aperto, delicatissimo, piano, eguale, soavissimo; in somma, se ei si potesse dire senza peccato, più che angelico. . . . Io non ho veduto ne udito alcun cantante hoggidì che le possa andar al pari, nè nelle parti antedette della bellezza della sua voce, nè nella discretione e giudicio con che ella la porta.* AF, in Patrizi 1963, 39; translation modified from Patrizi 2003, 67.

by the overwhelming contact with her harmonic inner world, and musical connoisseurs like Patrizi react with wonder and amazement. La Molza's ability to evoke the marvellous, however, refers to more than an indefinable kind of musicality; it is defined in very precise musical and technical terms shared by the musical humanists of Patrizi's time:

> Since this [i.e., the marvellous power of La Molza's voice] is a definite fact not only in my judgement but also in that of many valued and worthy musicians, there is no one today who intones the notes better or more correctly: without any effort [and] without any of the pauses that are heard in the majority of singers with disgust and virtual hatred by the person who is capable of listening and has musical taste. But she does everything with a soft glissando [i.e., sliding], and she descends or ascends [vocally] with such smoothness that it appears that in it one hears no breaks at all. Such a thing is very rare, so that it is marvellous in her. It is also rare to find with singers that they express the flats and the sharps with the enthralling sweetness that they desire. And [he] who does it by chance, or who comes close, is justly held in esteem. But to tell the truth, there is no man who knows how to do it better than she. And one can give her this truest praise: that in this no man is her equal. But by thus singing the quavers and semiquavers in the empty space of the words underneath [i.e., applying rhetorical ornamentation], whether down low or up high, with such smoothness of intonation and with such clear distinction of each that it is a marvellous thing, the result is that I can well say that my ears never have heard nor will ever hear a thing that can equal it.[225]

225 *Con ciò sia cosa che egli è cosa certissima non solo per mio giudicio, ma per quello di molti valenti e prodi musici, non è hoggi di alcuno che canti che intoni meglio le note, nè più giusto, senza niuno sforzo et senza alcuni puntamenti che si sentono nella maggior parte de'cantanti, con ischifezze et quasi odio di chi gli ode et habbia gusto di musica. Ma tutto fa con uno sdrucciolamento piano et con tanta egualità cadente o salente che e' pare che non vi si senta intervallo veruno. La qual cosa sì come è rarissima, così è maravigliosa in lei. Molto più rara cosa è ne'cantanti che i sollevamenti e le diesis sieno da loro espresse con quella ammortita dolcezza che esse vogliono. Et chi il fa peraventura o vi si avicina è giustamente tenuto in istima. Ma per vero dire, non è huomo che meglio li faccia sentir di lei. Et le si può dare questa verissima lode, che in ciò niuno huomo sia che la pareggi. Ma nel portare le crome e le semicrome negli spatij voti di parole di sotto, o allo in giù o allo in sù, con tanta egualità di intonatura e con sì chiara spiccatura di ciascheduna che è cosa maravigliosa, sì che io ben dire posso che le mie orecchie nè hanno udito, nè* [*so*]*no per udire, cosa che più le appaghi giamai.* AF, in Patrizi 1963, 39–40; translation modified from Patrizi 2003, 68.

It is interesting to note that Patrizi praises Tarquinia's art of singing for the very same reasons that he praises birds for their song. Both naturally gifted singers and birds are supposed to be able to express the harmonic laws of nature with the utmost purity.[226]

The most remarkable transformation in the tradition of the harmony of the spheres occasioned by Patrizi's transfer of music from the quadrivium to the trivium, analysed at 5.3, is fleshed out more precisely in this passage. Patrizi's praise of La Molza's capacity to "express the flats and the sharps with the enthralling sweetness that they desire", is further evidence that the pure Pythagorean consonances of the octave, fifth, and fourth have lost their magical power and have made way for the tempered consonances of equal temperament. Patrizi praises her because she is able to modulate from one key to another, which is possible only if one uses equal temperament. This corroborates Chua's (2001, 18) hypothesis that in accordance with the transfer of music from the quadrivium to the trivium at the end of the sixteenth century, the music of the spheres was allocated to the rhetorical will of the human ego, shifting the magic of the cosmos to the voice of human nature.

Skill in ornamentation was an essential part of the expressive possibilities to create a kind of musical magic for a singer in the second half of the sixteenth century. Ornamentation was used not only to enhance expressive and rhetorical content but also to evoke the sublime. Patrizi himself gives some music-theoretical clues that help to reconstruct the rhetorical and psychological dimensions of Tarquinia's musical performance. In one of the passages cited above he mentions her skill at improvising a counterpoint on an existing polyphonic composition.[227] Many of these counterpoints, made up of diminutions, have survived in musical treatises as well as in compositions.

The section of *L'amorosa filosofia* that describes La Molza's art of embellishing a melody contains blank spaces to accommodate technical descriptions that were never completed.[228] On the basis of the few treatises on ornamentation to survive from this time, it is easy to fill these gaps. To explain in detail how La Molza enhanced the expressive and rhetorical content of a song, Patrizi gives a description of the sixteenth-century practice of applying a specific ornament to a single note (fig. 5.7):[229]

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226 See 5.3.1.

227 Quoted above in n. 197.

228 *AF*, in Patrizi 1963, 40. In order to supplement his own account, Patrizi certainly intended to include examples of music that would have had to be obtained from a third party.

229 The interpretation of the music theory in these passages in Patrizi's *AF* is based on the diminutions described in Giovanni Luca Conforto's *Breve et Facile Maniera d'Essercitarsi a Far Passaggi*. See Conforto 1922, 25.

FIGURE 5.7 *Rhetorical embellishments from Giovanni Luca Conforto*, Breve et Facile Maniera d'Essercitarsi a Far Passaggi *(1593), 25.*

> Of these [graces], musicians of our day have made three main categories: trills [i.e. *trilli*, throat vibrations],[230] running figuration patterns [*movimenti*], and gorgia [i.e., trills: *groppo* and *mezzo*]; and all of them are diminutions of the length of the notes. The trills they also call *lecchi* and Alfonso della Viola[231] called them *ghiottonie*, and it is a brief vibration in the throat that in one stroke is heard softly and instantly disappears [i.e., throat vibrato]. . . . The *movimento* is a longer ornament [which must be applied] not at [the final cadences] but at the principal cadences in the middle or a little bit later [in the musical phrase].[232]

230 Given that the names of these kinds of embellishment were not established in a rigid way in the second half of the sixteenth century, it could very well be the case that Patrizi here uses *trillo* for throat vibration, or made a mistake in his definitions.

231 Alfonso dalla Viola (also della Viola) (c. 1508–c. 1573) was an Italian composer and instrumentalist. He was the principal composer at the Este court in Ferrara for about four decades in the middle sixteenth century, and was renowned as a player of several instruments. See Haar 2007–2009b.

232 *Della quale i musici de'nostri giorni hanno fatto tre parti principali, trilli, movimenti et gorgia, et tutte sono diminutioni de' tempi delle note. I trilli chiamano lecchi, et Alfonso dalla Vivuola li addimandava ghiottonie, et è un brieve gorgheggiamento di gola che in un tratto si fa sentire dolcissimo et tostamente si perde. . . . Il movimento è un trillare più lungo non nelle cadentie, ma ne'princìpi fino a' mezi o poco più oltre.* AF, in Patrizi 1963, 40; translation modified from Patrizi 2003, 68–69.

In order to enhance the expressive and rhetorical content of a madrigal like "Anchor che col partire" through rhetorical embellishments, a singer had to understand the expressive content of the text as well as the harmonic structure of the composition. On the basis of this knowledge, a singer knew where to find the best moments for enhancing expression through ornamentation. In a successful performance of such a madrigal, the singer was able to lure the audience into her inner world, and they would feel transported by the music as a result.

Building on and further developing the hypothesis of Stras, I am now able to argue that Tarquinia's 'marvellous' interpretation of Cipriano de Rore's madrigal "Anchor che col partire" could have resembled Bassano's divisions on it, which have been handed down in writing. If so, it is highly likely that she also performed other madrigals in this style.

Another passage in *L'amorosa filosofia* describes Tarquinia Molza's wonderful performance of the madrigal "Hor che 'l ciel e la terra e'l vento tace" ("Now that the sky and the earth and the wind are silent") by Cipriano de Rore after a text of Francesco Petrarca.[233] Patrizi reports the amazement of Alfonso d'Este when he heard La Molza singing and playing the lute during a state visit to Modena:

> With this singing she [i.e., Tarquinia] so amazed Duke Alfonso and the duchess [i.e., Barbara d'Austria][234] that as proof of it and as reward for her virtues, he always allowed her to sit on the same level as their highnesses during the civic feasts that were being held in Modena, much envied, as is obvious, by all the noble ladies and by all the gentlemen present. Among the various songs, the duke's favourite remained Petrarch's sonnet "Hor che 'l ciel e la terra e'l vento tace". Because of the amazement that it stirred in the duke, it was repeated at least four or six times.[235]

233 There were at least five different settings of Petrarch's "Hor che 'l ciel" circulating in print in the late 1560s. La Molza may not have sung any of them; she could have improvised, used a standard *aria di sonetto*, sung a setting which no longer survives, or even set the text herself. Or she might have used Ciprirano de Rore's five-voice version which appeared in 1542. See Stras 1999, 367.

234 *AF*, in Patrizi 1963, 38n1.

235 *Di questo canto stupì tanto il duca Alfonso e la duchessa di * * * *, che per testimonio di ciò et per merito della sua virtù nelle feste publiche che essi fecero in Modena, sempre le diede a sedere luogo pari alle loro altezze, con molta invidia, come è verisimile, e di tutte le nobilissime donne e di tutti gli huomini presenti. Del qual canto che fu di varie cose, restò favoritis-*

The first stanzas of the text of the madrigal are as follows:[236]

> Now that the sky and the earth and the wind are silent
> And the beasts and the birds are stilled by sleep,
> Night draws the starry chariot in its course
> And in its bed the sea sleeps without waves,
>
> I see, I think, I burn, I weep, and she who fills me with sorrow
> Is always before me in my sweet suffering.[237]

Even though the text of this madrigal is very beautiful, the explanation for the duke's transport may be sought elsewhere: in Tarquinia's evocation of the musical sublime. The phrase "Night draws the starry chariot in its course", which is associated with the traditional music of the spheres, is not given any special musical treatment. However, the words 'I burn, I weep', and 'suffering' stand out musically. Thus, De Rore's setting of "Hor che 'l ciel" develops a sharp contrast in musical emotions: it is not the "starry chariot in its course"—a classical topos of the tradition of the harmony of the spheres—but the expression of human emotions that De Rore highlights. A singer versed in the rhetorical embellishments could voice and intensify these subtle shades of textual meaning in his or her vocal interpretation.

In Patrizi's description of Tarquinia's performance of "Hor che 'l ciel", he addresses not only the rhetorical way in which she ornamented these emotionally charged words but also the psychological level of the experience of the sublime. He describes his 'uplifting' experience of her performance of this madrigal as follows:

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simo del duca quel sonetto del Petrarca, 'Hor che il ciel e la terra, e'l vento tace', che per la meraviglia che il duca ne prese fu fatto replicare ben quattro et sei fiate. AF, in Patrizi 1963 42; translation modified from Patrizi 2003, 70–71.

236 Francesco Petrarca, *Canzoniere*, CLXIV, in Petrarca 2011, 1: 41.

237 *Or che 'l ciel e la terra e'l vento tace,*
et le fere, e gli augelli il sonno affrena,
Notte il carro stellato in giro mena,
Et nel suo letto il mar senz'onda giace,
Vegghio, penso, ardo, piango e chi mi sface
Sempre m'è inanzi per mia dolce pena.
FRANCESCO PETRARCA, *Canzoniere*, CLXIV.

> When she does it [i.e., singing accompanied by her lute], there is no one with such a rude or cold soul who may not be moved and feel all his veins and pulse become warm and his soul filled in such a way that it might seem to him that he is among God's angels in Heaven.[238]

From the text alone, it is not possible to suggest what precisely evoked the 'psychological sublime', that is, the feeling of being "among God's angels in heaven" in La Molza's performance of this madrigal. Presumably, it was caused by the way she expressed the emotive content of certain words. But an additional explanation can also be sought in the way she may have exploited a sudden change in the temporal dimensions of the madrigal in her performance. A sudden change in the temporal dimensions of a musical performance is a sublime effect proven to be capable of sending an audience into transports.[239]

Petrarch's sonnet concerns the bittersweet torments of a lover unable to sleep, wounded by grief and yet healed by his lady's hand. In the conventional manner, his troubled state is contrasted with the calmness of nature. It seems plausible that it is precisely in the musical timing and expression of the sharp contrast between the silence of nature and the turbulent and 'noisy' inner world of the lover between bars 36 and 37 that we must seek the musical sublime of Tarquinia's performance (music example 5.1).

It is highly likely that La Molza's primary means of invoking the sublime in this composition was musical contrast. Contrasts in music are based on common stylistic elements of the time: rhythm, harmony, ornamentations, and so forth. Such features cannot create the sublime in their own right, but they must occur in a specific context. If La Molza performed the imagery of the "silent sky and earth" (bars 1–36) of the beginning of the composition in a distant, unembellished way and made an abrupt transition in her performance by expressing the troubled state of the lover, "I burn, I weep" (bars 41–43), in a highly expressive and ornamented way, the audience would experience the enormous contrast and could be transported by it completely.

This reconstruction of La Molza's performance of De Rore's "Hor che 'l ciel" is supported by Gerbino's (2009, 380) observation that Aristotle's concept of

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238 *. . . al quale atto non è niuno di sì rozzo animo o sì freddo che non si senta commovere e riscaldare tutte le vene e i polsi, empire l'anima sifattamente che le paia di certo di stare tra gli angeli di Dio in paradiso.* AF, in Patrizi 1963, 42; translation modified from Patrizi 2003, 70.

239 This sublime effect was both used in eighteenth-century music and described in contemporary treatises on the aesthetics of music. See Webster 1997.

classical tragedy was replaced by Petrarchan theory of love in the Italian musical theatre of the late sixteenth century. With these considerations in mind, we can now conclude that Patrizi was formulating a theory of poetics and music in which the Aristotelian theories of imitation and catharsis originating from his *Poetica* were replaced by the Petrarchan belief in the healing power of poetry and music for the sorrows of love. Hence, Patrizi interpreted Ficino's Neoplatonic religious doctrine of love through the lens of Petrarchism, and in so doing he secularized the doctrine of *musica humana*, in particular the experience of the music of the spheres.

In conclusion, strictly speaking, Patrizi's decomposition of great parts of the Pythagorean doctrine of cosmic harmony in the context of his philosophy of the universe should have led to the abolition of the concepts of both the 'harmony of the human soul' and the 'divine laws of harmony in earthly music'. For when the world has lost its perfect Pythagorean tuning, the metaphysical reality of an inaudible music of the spheres can no longer be imitated in earthly music. In order to avoid such a devaluation of music, Patrizi invented a philosophy of music that could restore the magical quality that music seems to have possessed up to and during Ficino's time.

Hor che'l ciel e la terra - Così sol d'una chiara fonte
R 1542, No. 2
5
C
A
Q
T
B
Hor che'l ciel e la ter - ra e'l ven - to ta - ce
Hor che'l ciel e la ter - ra e'l ven - to ta -
Hor che'l ciel e la ter - ra e'l ven - to ta -
Hoc che'l ciel e la ter - ra e'l ven - to ta - ce
Hor che'l ciel e la ter -

MUSIC EXAMPLE 5.1 *Cipriano de Rore, "Hor che 'l ciel e la terra e'l vento tace", bars 1–62. From* Opera omnia, *4–6.*

10
E le fe - re e gli au-gel - li il son - no af-fre - - na,
ce E le fe - re e gli au gel - li il son-no af-fre - na, il son - no af-fre - -
ce E le fe - re e gli au-gel - li il son - no af - fre - na, E
E le fe - re e gli au-gel - li il son-no af-fre - - na, E le fe - re e gli au-gel -
ra e'l ven - to ta - ce E le fe - re e gli au-
15
E le fe - re e gli au-gel - li il son - no af-fre - - na,
na, E le fe - re e gli au-gel - li il sonno af - fre - na, Not-te'l car - ro stel - la-to in gi -
le fe - re e gli au-gel-li il sonno af - fre - na, af - fre - na, Not-te'l car - ro stel - la - to in
- li il son - no af-fre - na, il son - no af - fre - na, Not-te'l car - ro stel-la -
gel - li il son - no af - fre - na, il son - no af-fre - - na, Not - te'l car - ro
20
25
Not - te'l car - ro stel - la - to in gi - ro me - na, Not - te'l car - ro stel - la - to in
- ro me - na, in gi - - ro me - na, Not - te'l car - ro stel - la - to in
gi - ro me - na, Not - te'l car - ro stel - la - to in gi - ro me - na
- to in gi - ro me - na, Not - te'l car - ro stel - la - to in gi - ro me - -
stel - la - to in gi - ro me - na, Not - te'l car - ro stel - la - to in gi -
30
gi - ro me - na E nel suo let - to il mar senz' on - da gia - ce,
gi - ro me - na E nel suo let - to il mar senz'on-da gia - ce, E nel suo let - to il mar
E nel suo let - to il mar sen - z'on-da gia - ce, E nel suo let - to il
na E nel suo let - to il mar. senz' on - da gia - ce, E nel suo let-to il mar. sen - z'on -
- ro me - na E nel suo let-to il mar sen-z'on - da gia-ce, E nel suo let -

35
40
Veg - gio, pen - so, ar - do, pian -
sen-z'on - da gia - ce, Veg - gio, pen - so, ar - do, pian -
mar sen - z'on - da gia - ce, Veg - gio, pen - so, ar - do, pian -
- - da gia - ce, Veg - gio, pen - so, ar - do,
- to il mar sen - z'on - da gia - ce, Veg - gio, pen - so, ar - do,
45
- go, e chi mi sfa - ce Sem - pre m'è in-an - zi per mia dol - ce
- go, pian - go, e chi mi sfa - ce Sem - pre m'è in-an - zi per
go, pian - go, e
pian - go, e chi mi sfa - ce Sem - pre m'è in - an - zi per
pian - go, e chi mi sfa - ce, e chi mi
50
55
pe - na, Sem - pre m'è in - an - zi per mia dol - ce pe - - -
mia dol-ce pe - na, Sem-pre m'è in an - zi per mia dol - ce pe - na;
chi mi sfa - ce Sem - pre m'è in-an - zi per mia dol - ce pe - na;
mia dol - ce pe - na, per mia dol - ce pe - na;
sfa - ce Sem - pre m'è in an - zi per mia dol - ce pe - na; Guer - ra è l mio
60
na; Guer - ra è l mio sta - to, d'i - ra e di duol pie - na,
Guer - ra è l mio sta - to, d'i - ra e di duol pie - na, E sol di
Guer - ra è l mio sta - to, d'i - ra e di duol pie - na,
Guer - ra è l mio sta - to, d'i - ra e di duol pie - na, E sol di
sta - to, d'i - ra e di duol pie - na, E sol di lei pen-san - do ho qual -

5.5 Conclusion

This chapter has offered a reconstruction of the way that Patrizi understood the music-mind interface, that is, the relationship between the human soul (*musica humana*) and earthly music (*musica instrumentalis*). In contrast with Ficino, Patrizi experienced problems in formulating a Platonic theory of music's power to influence the human soul that was consistent with his theory of world harmony (*musica mundana*). This resulted from his effort to forge a synthesis between Platonic and Aristotelian claims about the interaction between music and the soul. His point of departure was Aristotelian psychology, which did not postulate any special relationship between the two. Subsequently, this neutral model was imbued with Platonic ideas about music's magical power to influence the human soul. Hence, as with his philosophy of nature, Patrizi ended up with an ambiguous psychology and aesthetics of music. Patrizi, moreover, attached greater importance to the intellect than to the sense of hearing, because he regarded it as more closely related to the human soul. Yet ultimately, in the acts of composing and making music, listening to and philosophizing about it, one had to be led both by the ear and by reason.

Propagating and further developing Ficino's Neoplatonic doctrine of the intertwinement of the human soul, love, and music, Patrizi's interpretation of the harmony of the spheres as formulated in his *L'amorosa filosofia* culminated in a restatement of the Neoplatonic belief in the healing power of poetry and music for the sorrows of love. In this treatise Patrizi tried to pass on the Neoplatonic view of the world in which the cosmos, man, and his music were tuned according to the same Pythagorean ratios. This view enabled the inaudible music of the spheres to vibrate within the human soul and, conversely, let the audible tones of human music echo the celestial spheres.

In this Timaean worldview, music imposed a unity on Creation, linking man with the whole cosmos. Up to and including Ficino's time, Pythagorean tuning had been a key to the universe, because its numbers ordered the cosmos. By opting for Aristoxenian tuning principles, Patrizi deconstructed this belief, as I have discussed at 4.3.2. By breaking the connection between cosmic order and music theory, Patrizi in fact also untuned the human soul. In his view, man could not be conceived of as an integral part of cosmic harmony but became the subject of a new descriptive psychology, which was itself part of the new naturalistic philosophy of the late sixteenth century. Man, then, has two faces in Patrizi's philosophy. In the scientific context of the sketchy psychology of *De humana philosophia* that was developed in dialogue with Aristotle's *De anima*, music's power over human emotions and cognition, and its benefits to our

mental and physical well-being, are denied and man is studied in essence as a special kind of animal. Yet in the idealized normative context of his writings on music aesthetics, such as *Della poetica* and *L'amorosa filosofia*, the view of man is still in line with the Platonic idea that music has the power to shape and condition the human soul.

Evidently, Patrizi tried to reformulate the Platonic doctrine of music's power to affect man's soul in view of the development of new scholarly ideas about imitation and expression in art. His view on musical expression was founded on the Platonic axiom that music has a content which is somehow similar to the content of the human soul. On the basis of this structural similarity, a mental concept could be expressed in vocal music and communicated in a direct way to an audience.

Despite his dislike of Aristotle, Patrizi's definition of musical expression resembles the view of musical imitation in Aristotle's *Poetica*. Patrizi, moreover, saw expression as a kind of imitation of metaphysical concepts, such as the harmony of the spheres, which were not accessible through the sense of hearing alone. Musical expression and understanding could occur only when the sense of hearing was paired with the cognitive faculty of reason, which was able to process mental concepts. Though pleasure in listening to or making music was as important for Patrizi as it had been for Aristotle, it remained subordinate to understanding. Just like Plato and Ficino before him, Patrizi was convinced that music had a role to play in the moral education of man.

Patrizi's philosophy of music reflects a change in the traditional relationship between music theory and musical performance practice. In the sixteenth century, music theory increasingly began to describe contemporary musical practice, and this is reflected in music-theoretical treatises such as *L'amorosa filosofia*. However, this development did not change music theory into a purely empirical science. On the contrary, much of the traditional Pythagorean and Neoplatonic music philosophy was upheld and reformulated in order to defend the fundamental idea that music has the power to move the human soul.

The aesthetics of Patrizi's *Della poetica* can best be described in terms of a tension between the ambition to formulate a rational semantics of tonal music based on strict rules and the firm belief in the fundamental indeterminacy of music as an object of aesthetics. In his *Della poetica* and *L'amorosa filosofia*, he borrowed ideas about the experience of the harmony of the spheres from Neoplatonist predecessors such as Ficino. But against the changing intellectual climate of the late sixteenth century, it has been difficult to judge whether they still held the same meaning for Patrizi. The doctrine of the harmony of the spheres is still strongly present in the explanation of music's magical power given in *L'amorosa filosofia*, but it seems to have changed from a literal belief into a

metaphorical doctrine. Whereas Ficino truly believed in the possibility of joining the harmonic symphony of the planets and the songs of the angels inhabiting them, Patrizi thought of this kind of transporting aesthetic experience only in metaphorical terms. In Patrizi's musical aesthetics, the experience of the music of the spheres is a kind of nostalgia for a lost paradise, which can be evoked in sublime musical performances.

Although Patrizi did not believe in the possibility of restoring ancient musical practices, his aesthetics of music is permeated with a sense of loss and the need to regain a lost magical musical practice in which the power of wonder is operative. Patrizi wanted to revive the musical magic of ancient Greek monodic vocal music, because he believed that modern music in his time was experiencing a crisis of identity, as a result of which music had lost its power to influence the human soul deeply. In line with his belief in a *prisca theologia* and his anti-Aristotelianism, he argued that Aristotelian psychology could be blamed for this loss, because it did not postulate any special relationship between music and the human soul. The revival of ideas on music originating in Aristotle's *Poetica* supposedly had deformed music into a superficial, imitative and pleasure-seeking business. Yet Patrizi was not aware that his critique of Aristotle became an important factor in the dissemination of Aristotelian ideas concerning the relationship between the human soul and music, opposed as they were to the Pythagorean Neoplatonic view.

A hundred years earlier, astrological and magical musical practices were still theoretically within reach for a philosopher-musician like Ficino, but by Patrizi's time, they could only be proposed as an aesthetic theory for the re-enchantment of empirical reality.[240] Only in a metaphorical way, therefore, was Patrizi able to imitate Ficino, by arguing that music in his own time should recover the powerful music of an ancient past. Yet both Ficino's ambition to reinstate the cult of Orphic song and Patrizi's search for the musical sublime can be seen as attempts inspired by the tradition of the harmony of the spheres. In Ficino's philosophy, the doctrine of world harmony was firmly anchored in the network of cosmic analogies which made his project, at least theoretically, feasible. In Patrizi's philosophy, however, this network was banished from his ontology and epistemology, which made his project, in literal terms, a 'mission impossible'. Nonetheless, the desire to regain a lost musical paradise proved to be a very fruitful way of reshaping the concept of the harmony of the spheres.

Fully aware of the dim light that historical sources, including the newly discovered fragments of Greek music notation, could shed on the musical practice that he was trying to rediscover, Patrizi came up with a new strategy to revive the miraculously powerful music of the ancient past. At the heart of this

240 See Weber 1958, li–lii; and Chua 1999, 12–22; and 2001, 20–22.

strategy is the reconciliation of the concept of imitation with the concept of cosmic harmony: by denouncing the present as a pale imitation of an original ancient music full of the magical power of wonder, Patrizi succeeded in presenting characteristics of contemporary vocal musical practice as something regained from an ancient past, in which music was still loaded with supernatural magic and astrological forces. By making his musical aesthetics an independent discipline from his philosophy of man, Patrizi could retain valuable parts of the Timaean view of cosmic harmony which he would otherwise have had to sacrifice in his philosophy of man for the sake of compliance with an empirical scientific method.

Patrizi was blind to some effects of his own musical theories, because far from reviving the miraculous power of the music of the ancient world, the research on Greek monodic song in his *Della poetica* contributed to a certain extent to the disenchantment of music.[241] Furthermore, the manner in which Patrizi transferred music in his philosophy from the four mathematical disciplines to the far more subjective disciplines of rhetoric, grammar, and dialectics transformed the character of music fundamentally. By this shift, he made music into a subjective human art, in which the power of rhetorical persuasion became the most important element of the experience of the music of the spheres.

In his *Della poetica* Patrizi created a musical universe of many expressive possibilities, which enabled man to bend music according to his will, to express and communicate a musical message. But when Patrizi described Tarquinia Molza's art of singing as a reinstatement of Pythagorean world harmony, he did not mean this in the literal way of Ficino, as truly reviving the Orphic hymns. What Patrizi praised in La Molza's singing was in fact the way she managed to tune and temper the pure musical intervals in such a way that she could vocalize her inner world and communicate it to her audience. Indeed, Patrizi praised her for breaking the harmonic laws of the cosmos represented in the ratios of the Pythagorean tuning to express her inner self.

In Patrizi's opinion, only a musical genius like Tarquinia Molza could understand and communicate archetypal musical mental concepts, because of an innate musicality. By singing and interpreting the famous madrigals of her time, she was able to animate them with the musical meaning and power encoded no longer in the recorded notation of consonant intervals but in improvised embellishments used to enhance the meaning of a text. Her voice became a temporary means for enchanting the world. Whereas Ficino's musical ceremonies obtained the echoes of an invisible exterior world, the echoes Patrizi heard in La Molza's song were of an invisible harmonic world within her soul.

241 Weber 1958, li–lii.

CHAPTER 6

Conclusion

6.1 The Rediscovery of 'New' Ancient Sources Belonging to the Tradition of the Harmony of the Spheres

This book has investigated the transformation of the notion of Pythagorean world harmony during the Renaissance and the role of both Marsilio Ficino and Francesco Patrizi in redefining the relationship between cosmic order and music theory. By concentrating on Ficino's and Patrizi's work, the book has chronicled the emergence of a new musical reality between the fifteenth and sixteenth centuries, a reality in which beauty and the complementary idea of celestial harmony were gradually replaced by concepts of expressivity and emotion, that is to say, by a form of idealism that was ontologically more subjective than the original Pythagorean and Platonic metaphysics.

I have argued that both Ficino and Patrizi used Plato's *Timaeus* to overcome the impasse of Aristotelian cosmology in the fifteenth and sixteenth centuries. For both authors, the Timaean narrative of the origin of the world was a powerful source of inspiration that could be adapted to the precepts of biblical and Christian exegesis. Ficino's and Patrizi's philosophies of music, moreover, have been interpreted as evidence of a slow process of realignment between musical theory and musical practice, meant to reconcile Pythagorean harmonics with Aristoxenian notions of tuning and temperament. In a gradual process, Ficino and Patrizi transferred the theory of celestial harmony from the domain of philosophy of nature to that of poetics, shifting the focus from the soul of the cosmos to the human soul. In so doing, they imparted a dramatic subjective turn to the early modern discussion of celestial harmonies.

Until the first half of the sixteenth century, scholars like Ficino often conceptualized theories of cosmic order in terms of music theory, in the belief that music could somehow validate their truths. Music and harmonics to a large extent legitimized cosmology, and conversely, music was charged with deep cosmological meaning. As Clark and Rehding (2001, 6) have shown, in sharp contrast with these ancient harmonic cosmologies, based on the belief that music directly relates to the world, music theory from the late sixteenth century onwards tried to ground itself in physical, rather than metaphysical, reality. During this transformation the "technical terms drawn from Greek writers" and the "jargon of Boethius" became "unintelligible and useless", as a result

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of which the sky became 'untuned'.[1] To explain how this change manifested itself in the cosmology, music theory and aesthetics of the Italian Renaissance, I have explored two interpretations of the doctrine of the harmony of the spheres, standing on either side of the shift.

The distance between Ficino's and Patrizi's interpretation of the concept of world harmony—as Moyer 1992, 283 has shown in similar cases—seems greater than the period in time that separates them. Their argumentation, use of sources, mathematical analysis (the abundant use of Pythagorean numerology in Ficino's case and the almost total lack of Pythagorean theory in Patrizi's), and even their style of writing stand in sharp contrast to each other. This is quite remarkable, given their adherence to a seemingly uniform Renaissance Platonic tradition. Despite these conspicuous differences, however, I have argued that Ficino and Patrizi can still best be understood not simply as opposites but as participants at either end of a single scholarly project, in which the rediscovery of the key to the harmonic structure of the universe was a central issue. Many of the questions answered by Patrizi and his contemporaries at the end of the sixteenth century—concerning the precise nature of the relationship between the harmony of the planetary spheres and the harmonies, or consonances, used in music, the nature of music among the ancient Greeks and Romans, the kinds of tuning systems used by the ancients—had first been raised a century earlier by Ficino and his contemporaries. The route to satisfactory answers had been far longer and more twisted than Ficino in all his optimism had anticipated; for such questions had gone to the heart of the scholarly legitimization of the very relationship between cosmic order and music theory itself.

The main cause of the beginning of the transformation of the tradition of the harmony of the spheres which took place during the Italian Renaissance certainly was Ficino's rediscovery, translation, and revival of sources such as Plato's *Timaeus*, Proclus's commentary on the dialogue, Plotinus's *Enneads*, and the Orphic hymns, which was accompanied by the rediscovery of ancient Greek music-theoretical sources by his contemporaries. Yet as in any other scholarly discipline, access to cosmological and music-theoretical sources cannot be equated with a perfect command of their content. Passages concerning world harmony in texts such as Plato's *Timaeus*—often read through the lens of Ficino's translation and the accompanying commentary—were gradually incorporated into the Renaissance Platonic tradition, be it in the discipline of natural philosophy or music theory, and critical questions concerning the defensibility of the very relationship between cosmic order and music theory

1 Burney 1935, 2:136.

began to appear only towards the end of the sixteenth century. Such lengthy periods of appropriation of ancient sources were common to Renaissance scholarship in cosmology, music theory, and many other related disciplines.

Against the backdrop of Ficino's adherence to the Renaissance narrative of a *prisca theologia*, in which the concept of cosmic harmony functioned as an eternal truth, it made sense for him to assume that 'new' ancient sources (Moyer, 1992, 284) could be accommodated to this tradition as he understood it. Ficino's heartfelt defence of it reinforced Patrizi's belief—although often against his better judgment and his love for historical truth—that ancient tradition was unified in its agreement on basic concepts such as an eternal kind of world harmony. Yet despite their usefulness in defending a belief in an eternal musical kind of cosmic order, the newly discovered ancient sources concerning cosmology and music theory also almost immediately came to function as the occasion for dispute and debate on the precise nature of the harmony of the spheres and its cosmological and music-theoretical underpinnings. In particular, during the second half of the sixteenth century, they played a role in the conflict between adherents of geocentric and adherents of heliocentric views of the harmonic structure of the cosmos and between Pythagorean and Aristoxenian music theorists over the very foundation of a tuning system. Yet, proceeding on the assumption of the eternal and uniform tradition of a *prisca theologia*, Ficino and Patrizi attempted to account for these discrepancies in various ways.

This book corroborates Tomlinson's (1993, 67ff.) thesis, which is in turn built on that of Haar (1961, 115–116), that the major transformation in the tradition of the harmony of the spheres that took place during the fifteenth century in the field of music consisted of closing the gap between the doctrine of cosmic harmony and the doctrine of music's influence on the human soul by attributing musical modes instead of single tones to the planets. By closing this gap, Ficino was able to develop a theory of astrologically and magically loaded modal music, which, as a direct echo of the modal music of the spheres, could be used to temper the human soul. For this purpose, Ficino defined the "echo of the harmony of the spheres" in terms of a "special power that comes from Heaven in occult ways" adding an extra spiritual dimension to the four elements, just like a harmony, or consonance, in earthly music was supposed to be more than the sum of it constituent tones.[2] To supplement Tomlinson's thesis, I have argued that before this interpretation of *musica humana* could be integrated into modern discourse on music and the mind, it had to be reconceptualized by scholars such as Patrizi. He managed to loosen up Ficino's superimposition

2 Ficino, *CiT* XXXI, 71r.

of the doctrines of world harmony and musical *ethos* without losing the associations created by pairing the two doctrines.

Patrizi's transfer of music from the traditional mathematical sciences to the rhetorical arts brought about a transformation in the tradition of the harmony of the spheres: celestial music was shifted into the realm of the human mind, in which numbers and musical proportions functioned as things conventional rather than natural. As Chua (2001, 18) has argued, this transformation brought with it a transfer of the magic of the cosmos to the realm of human musicality and the human voice. For Patrizi music no longer existed as a perfect numerological system out in the celestial realms, as Pythagoras, Plato, and Ficino had believed; rather, it was an activity of the human imagination and had a direct relationship with sounds that were constituted in the sense of hearing. Patrizi adopted from Vincenzo Galilei the idea that musical reality simply did not match up with the Pythagorean ratios that were, well into the sixteenth century, still supposed to organize the universe. But since the loss of music's magic and cosmic meaning was an undesired by-product of Patrizi's thought, he reconceptualized the secret knowledge of the harmony of the spheres as a lost paradise. The magic he experienced in the songs of his beloved Tarquinia Molza he described in terms of this lost paradise and by using the metaphor of the "weakest echo from the harmony of the spheres",[3] as though she could bring the reality of a lost musical world back into a modern practice.

The precise nature of the changes in subject matter of the concept of world harmony becomes clearer if we conceive of the transformation which took place in the tradition of the harmony of the spheres during the Italian Renaissance not as the replacement of a concrete concept by a metaphorical one but—following Eamon (1994, 351) and Black (1962, 39)—as a process in which the metaphor worked interactively with the subjects for which it stands, evoking associations between different sets of ideas and thus producing new meanings. This is precisely what happened with the elusive notion of the harmony of the spheres during its long reception history. The implications evoked by the metaphor transformed, filtered, and organized Ficino's and Patrizi's view of the metaphor's subject, which was world harmony. The metaphor of the harmony or music of the spheres thus organized their views of the cosmos, man, and music in interrelated but different ways.

Furthermore, the detailed study of the historical sources presented in this book corroborates Arbib and Hesse's (1986, 156) claim, discussed by Eamon, that cultural and scientific revolutions often can be formulated in terms of metaphoric revolutions. The metaphorical shift which manifested itself in Ficino's and Patrizi's reformulation of the doctrine of world harmony shows that, even

3 *AF*, in Patrizi 1963, 71.

though they used the same traditional concept, they saw cosmological and musical phenomena differently. When the metaphor of the harmony of the spheres exchanged its meaning as the hidden quadrivial structure of the world of Ficino for a conception which evokes transporting musical experiences by using rhetorical techniques from the trivium of Patrizi, its traditional connotations suddenly became inappropriate and had to be updated.

The musical substance of the metaphor of the harmony of the spheres experienced a transformation during the Italian Renaissance. Whereas medieval music theorists thought that it referred to angelic song and vocal church music, Ficino as a humanist searched for its substance in the direction of Greek monodic music, which he thought he had revived in his Orphic singing practise, although that practise presumably resembled secular songs of his time. His focus on Greek monadic music was based on the erroneous assumption that the church modes were similar to the Greek modes. This search for music as one of the deepest mysteries of mankind was continued by Patrizi. Unlike Ficino, he was aware that Greek music was forever lost, but he was convinced that in nature, especially in birdsong and the soul of gifted musicians, the harmonic universal laws could be found on which earthly music should be based. Birdsong became a normative model for melodic expressiveness, which was associated with the lost magical music of the Greeks, who were supposed to have lived in harmony with nature. Thus, humanism worked interactively with the musical substance of the metaphor of the harmony of the spheres, updating it time and again to link it with the music sung and played in Italy during the Renaissance.

Whereas Ficino's interest in music was primarily inspired by the religious and cosmological functions that music performed in antiquity, Patrizi's interest in music arose particularly from his interest in poetry and drama and the social roles music played in ancient times. Ficino's and Patrizi's contributions to the technical field of music theory were far from original. But their discussions of contemporary issues, which were provoked by the discovery of 'new' ancient music-theoretical sources, provide an excellent focus for reflections on how conceptions of the cosmos as a musical structure and of music as an art with a cosmological range drastically changed over a relatively short period of less than a century.

6.2 The Development of New Methodologies

The rediscovery of ancient cosmological and musical sources that was encouraged by Renaissance humanism seems to have been one of the most influential factors for the change in how the relationship between music theory and

cosmic order was viewed during this period. In the discipline of music, however, as Moyer (1992, 285), Palisca (2006, 1), and Vendrix (2008, 1) have shown, humanism operated indirectly because scholars were inspired above all by ideas of Greek music as the ancient authors described it, not by its sound. In the other three mathematical disciplines as well as in natural philosophy, moreover, it was not primarily the content of newly discovered sources but a new methodological approach which affected the perceived connection between cosmos and music. The research presented in this book, first of all, gives rise to the thought that it was precisely the elusive character of the doctrine of world harmony and the lack of original musical material that contributed to the formulation of innovative Renaissance interpretations of the doctrine of the harmony of the spheres.

Ficino's most powerful interpretative strategy to deal with obscure, vague, incomprehensible, inconsistent or even conflicting information in his sources was 'harmonization'. Wherever two or more incompatible ideas appeared in his sources, he was able to reveal a basic harmony and agreement hidden beneath apparent obscurities, inconsistencies and conflicts. At the end of the sixteenth century, however, scholars such as Patrizi could no longer be satisfied with the precise details of Ficino's supposed agreement. Whereas Ficino, in texts such as his *Timaeus* commentary, devoted all his energies to the reconciliation of Platonic and Aristotelian cosmology, Patrizi was convinced that eternal truth such as world harmony could be defended only against the backdrop of the dismissal of the Aristotelian world view. In addition, whereas Ficino introduced new consonances such as the third and the sixth into traditional Pythagorean theory under the guise of a historical process of ongoing revelation, Patrizi felt compelled to disregard Pythagorean music theory almost completely. Nevertheless, Ficino and Patrizi were united in the way in which they accounted for these discrepancies in their desire to defend belief in a harmonious Creation.

The solution to the problems of obscurities and incompatibilities in the sources lies, at least in part, in the development of better and more objective (at least according to modern philological standards) principles for their interpretation. Those principles were developed in the emerging field of humanist textual criticism, which scholars such as Patrizi helped to shape. Patrizi, for example, attempted to resolve inconsistencies and conflicts in the ancient sources he studied by historicizing them. But his historical accounts were still deeply immersed in the historiographical narratives that he borrowed from predecessors such as Ficino.

Even though the analysis of ancient writings on subjects such as cosmos and music was their core business, for Ficino and Patrizi cosmological and musical scholarship—just like for their contemporaries, as argued by Moyer

(1992, 285)—did not consist solely of textual analysis. Because traditionally world harmony was studied in terms of the quadrivial disciplines, the study of cosmos and music had proceeded not by historical investigation but by means of logical and mathematical or numerological argumentation and demonstration. Plato's *Timaeus* itself emphasized a mathematical definition of world harmony as a midpoint between metaphysics and natural philosophy, which was exploited to the full in Ficino's commentary on the dialogue. The scholarly issues Ficino faced in writing his *Compendium* could hardly be reduced to matters of textual interpretation. On the contrary, the important questions he had to address in the treatise in order to successfully align the dialogue's theory of world harmony with the cosmological and music-theoretical views of his own time all dealt with the relationship between mathematical analysis and physical experience. The research agenda set by Ficino in this regard still determined the intellectual horizon of Patrizi's *Nova de universis philosophia*.

In Ficino's *Compendium*, the tradition of the four mathematical disciplines also contributed to the general framework for understanding changes in the philosophical content of the intertwined fields of cosmology and music theory. Since musical consonances, or harmonies, were understood in the *Timaeus* as the fundamental order of the universe, philosophical explanations of them could be true or false, or might be in need of an update in the case of some ancient sources, but the standard for evaluating those explanations was seen as eternal and objective. Ficino fervently defended the theory that though ancient sources such as the *Timaeus* might sometimes be obscure or even incorrect in their description of world harmony, this did not negate their importance for the revelation of eternal truths about the universe. Even though Ficino believed that perfect knowledge of world harmony had almost completely disappeared into oblivion by his time, he had no doubt whatsoever that it might be revived. Whereas for Ficino the acquisition of that knowledge was understood as the rediscovery of universal laws, this all changed completely in Patrizi's interpretation. That he almost completely discarded Pythagorean ratios and proportions in his philosophy of the universe is a clear indication that the musical standard for evaluating explanations of world harmony was rapidly disappearing at the end of the sixteenth century. Patrizi's scientific method of textual criticism for interpreting the newly available ancient cosmological and music-theoretical sources certainly urged him to dismantle the foundation of the Pythagorean tradition of the harmony of the spheres, yet it did not affect his belief in the Creation of a harmonious world.

Thus, Patrizi's interpretation of the concept of cosmic harmony reflects the changing relationship between music as a discipline and other disciplines such as cosmology and natural philosophy. This book has demonstrated that

the importance of the changes in cosmological and in musical-theoretical thought should be viewed, therefore, in terms of their impact on each other as well as on related disciplines and musical practice. Only if the doctrine of the harmony of the spheres is studied in the context of the debates and changes taking place concurrently in both humanistic studies and mathematics and natural philosophy can the changes and transformations it experienced during the Italian Renaissance be fully understood.

In contrast with many of his predecessors, Ficino highlighted the theme of human creativity. In his *Compendium* the Timaean Demiurge became a role model for artistic behaviour, and the creative power of the imagination became the focal point of the musical act. Ficino's idea that a god, demon, or impersonal supernatural power takes over the consciousness of a musician or listener during the act of conception, creation, or performance of a composition attracted late sixteenth-century musical scholars such as Patrizi. As Palisca (2006, 25) has shown, with the publication of Latin translations of Aristotle's *Poetica*, followed by many commentaries, an opposing point of view emerged in the sixteenth century. Ficino's theory of divine frenzy was countered with a naturalistic explanation of the creative process of composing a poem or a song. His abhorrence of Aristotle notwithstanding, the Platonic idea of divine *furor* and the Aristotelian idea of artistic technique became fused in Patrizi's theory of the harmony of the spheres.

Patrizi's description of the musical talent of Tarquinia Molza reflected this change in the concept of Neoplatonic ecstasy, a mental state which could be characterized as a certain kind of receptiveness to the experience of the harmony of the spheres. In a naturalistic way, Patrizi argued in his *L'amorosa filosofia* that musical technique must be learned even by those, like Tarquinia, who possessed great innate musicality. Musicians, in Patrizi's opinion, must be knowledgeable in every liberal art and science and have superior reasoning powers exercised not in exalted heated states but in calculating cool reflection. Though there is still metaphorical reference to Ficino's theory of astral and supernatural influences, the musician in Patrizi's music theory became independent of them, exercising the imagination to imitate and express human emotions and actions and in so doing sometimes inventing marvellous things—such as an experience of the harmony of the spheres. This kind of evocation of the musical sublime became a rhetorical act aimed at moving and transporting the listener. This transformation in the use of the metaphor of the harmony of the spheres illustrates Max Weber's (1958, 101–113) thesis that musical materials experienced a dramatic rationalization in this period in Western culture, which was paired with the re-enchantment of a new kind of yearning for a lost harmonic paradise.

Chapters 2 and 3, on Ficino's interpretation of the doctrine of the harmony of the spheres, corroborate Moyer's (1992, 286) conclusion that music's position as a quadrivial discipline which was related to natural philosophy and closely linked to musical practice gave it an important role in the scientific debates on the use of mathematics and experimentation in Renaissance scholarship in general. The case study of Ficino, moreover, also shows that music's position as one of the four mathematical disciplines was not challenged at the end of the fifteenth century, and that debates about the appropriateness of mathematical analysis did not question music's role in an absolute sense. From Chapters 4 and 5, on Patrizi's interpretation of the doctrine of world harmony, we can now supplement Moyer's findings and conclude that only by the end of the sixteenth century did the nature of the relationship between mathematics and physical phenomena become subject to debate in such a way that it endangered the Pythagorean belief in the indissoluble bond between numerical ratio, sound, cosmos, and nature. Though Patrizi, in imitation of Vincenzo Galilei, took the mathematical proportions of the Pythagorean tradition as true, verifiable descriptions of the phenomena of sounding strings, he shifted his definition of sound from sonorous number to vibrations in the air, whose mathematical regularity was defined in Aristoxenian terms of being pleasurable to the listening ear.

The role of mathematics in the analysis of the physical phenomenon of sound should not be understood simply in terms of the emergence of the science associated with the Scientific Revolution, that is, in terms of progress in the measurement and mastery of physical objects and sense experience. While Patrizi still relied on the notion of world harmony in his description of the universe, he no longer shared this discourse with musical scholars. Musical mathematics lost its founding function not only for a cosmology but also for a musical aesthetics, that is, for explanations of the power of music over the human mind. Whereas Ficino could still explain music's intellectual and emotional effects on the listener in terms of objective mathematical beauty and harmonic correspondences, Patrizi reformulated music's power in terms of subjective expressivity. The elusive doctrine of the harmony of the spheres, however, still provided both scholars with the perfect framework to theorize about the mysterious connection between the cosmos, man, and music.

Taken together Ficino's and Patrizi's reformulations of the concept of the music of the spheres bear witness to a significant change in the relationship between the disciplines of cosmology and music theory, which can only be understood from an interdisciplinary perspective. Music, as one of the four mathematical disciplines, was never considered a humanistic discipline, but—as noted by Moyer (1992, 289)—from the late fifteenth until the end of the

sixteenth century, it was taken over and assimilated by humanist studies. Both Ficino's notable lack of interest in the mathematical details of Pythagorean theory, which had fascinated medieval music theorists, and Patrizi's definition of the music of the spheres in terms of the trivium belong to the same transformation which took place in the theory of world harmony during the Italian Renaissance.

On the basis of the comparison of Ficino's and Patrizi's ideas about world harmony, the conclusion can be drawn that this transformation took place on the level of the subject matter, but above all on the methodological level. Whereas Ficino studied the concept of world harmony from the perspective of a perennial philosophy, in Patrizi's account of the subject, historical explanations had to compete directly with the Pythagorean interpretative tradition in offering solutions to the field's major questions, and often the historical explanations won. As a result, much of what was earlier conceived of as eternal wisdom was historicized and localized as belonging to a certain time or a certain place on Earth, and thus, harmonic cosmic order was increasingly seen as conventional, rather than natural, order. This generated a new interest in the history of the tradition of the harmony of the spheres, which could be creatively and imaginatively used by scholars after Ficino and Patrizi to load their own conceptions of the harmony of the spheres with new meanings.

6.3 Intellectual History from an Interdisciplinary Perspective

The combination of humanistic, natural philosophical, and mathematical training exhibited by scholars such as Ficino and Patrizi weighs against an attempt to account for the changes in the doctrine of the harmony of the spheres that have been discussed in this book by using explanations in the monodisciplinary terms of what nowadays is defined as musicology, philosophy, or history of science. This book has therefore examined the important transformation in the doctrine of the harmony of the spheres—from Ficino's fifteenth-century revival of Platonism and his establishment of Timaean cosmology as the point of entry into the systematic understanding of the world and man's and music's place in it, to Patrizi's attempt to establish natural philosophy and music aesthetics in the wake of the Scientific Revolution—from an interdisciplinary perspective. I have treated Renaissance cosmology and music theory as two aspects of the same intellectual history in order to show that if we explore the connections between these two disciplines, we can learn something about some of the main concerns and values of Renaissance thought that we could not learn from either of them taken separately.

This book contributes to an interpretation of sixteenth-century Italian cultural and intellectual life that is only partially related to the larger social, religious, and political narratives of the period. The only significant way in which this little chapter in the history of ideas—this part of the history of "thinking about 'something' that is pretty similar to nothing" (quoted in the beginning of the Preface)—intersects with the major narratives of the period is in the negative reception of Patrizi's Pythagorean and otherwise unorthodox cosmological speculation by the Roman Catholic Church, especially owing to the subject's link with Christian doctrine concerning the Creation of a harmonious world.

Furthermore, this book contributes to the debate about whether conceptions of world harmony can be related to the larger narrative of the development of science and, if so, how. There is still resistance among some philosophers and historians of the philosophy of nature and science, as noted, for example, in a recent article by Henry (2008, 4), to any suggestion that concepts such as Ficino's magical interpretation of the harmony of the spheres might have been instrumental in the emergence of modern science, while other scholars, such as Gozza (2000, 60), have defended the opposite view. This ongoing scholarly controversy over whether, and to what extent, Renaissance science—including music theory—prefigured the so-called Copernican Revolution has for a long time restricted the debate and limited the possibilities for investigating Ficino's and Patrizi's reception of the doctrine of the harmony of the spheres. In line with recent trends, explored by scholars such as Gouk (2002, 223–245) and Allen (2003, 247), this book has attempted to show that there are equally valuable alternative perspectives from which this subject can be studied. I hope that the perspective chosen for this book will further the debate on Renaissance speculations about the world, music, and man by discarding the narrative of belief in scientific progress.

The intertwined history of cosmological and musical thought appears not to support some of the standard historiographic conventions which were mentioned in 1.3 (*Status quaestionis*), demarcating the Renaissance as a period of stagnation, repetition, or even decline. It does, however, offer some points of departure for an alternative discussion based on the detailed analysis of Ficino's and Patrizi's creative elaboration of the Pythagorean theory of world harmony. As Copenhaver and Schmitt (1992, 286) have pointed out, the Renaissance was not only an age of rebirth but also a time for reconsideration of beliefs that had been taken for granted in the ancient and medieval periods. In this book I have demonstrated that one of the long currents of historical continuity which ran through the Italian Renaissance was the Pythagorean tradition of the harmony of the spheres. Yet underneath the surface of this continuous tradition, subtle

changes were emerging in the philosophies of Ficino and Patrizi, who were trying to update the doctrine to meet the scientific and cultural standards of their own times. Whenever they felt that the harmonic model of the world associated with this tradition could no longer contain their reasoning and experience, they amended it in the hope of preserving what they regarded as the perennial truth of world harmony.

Precisely due to the subtlety and inconspicuousness of many of these changes, the transformation which took place in Italian Renaissance theories of the harmony of the spheres has been passed over by many prominent Renaissance specialists, who perhaps assumed that nothing changed significantly in the Renaissance chapter of this tradition. They must not have realized that Ficino's magical interpretation of the concept of world harmony differed a great deal both from Plato's original formulation and from ancient and medieval interpretations. Furthermore, they overlooked the fact that Patrizi's mathematical instrumentalism in the field of music theory, which he borrowed from Vincenzo Galilei, threatened the very basis of the belief that the universe is ordered by the same numerical proportions that produce harmonies in earthly music. Ficino and Patrizi never made a clear transition from a traditional to a new meaning but rather continued to use the traditional implications evoked by the metaphor of world harmony both in their cosmologies and in their music theories. Presumably, they preferred not to depart from the Pythagorean tradition, because it endowed their cosmologies with beauty and purpose, and their music theories with cosmological meaning. Though Johannes Kepler is often presented in the secondary literature as the most important reformer of the doctrine of the harmony of the spheres, this book shows that humanistic scholars such as Ficino and Patrizi helped him to shape his innovative heliocentric interpretation of the age-old theory.

In sharp contrast with the view that in the course of history religion obstructed scientific development, this book corroborates Max Weber's (1958, 115–117) view that 'irrational' practices such as religion, magic, and music are often highly intertwined with the development of rational structures and science. The music theory associated with the belief in the harmonic Creation of the world, indeed, inspired scientific investigation into the cosmos, man, and music during the Italian Renaissance. Ficino's and Patrizi's perseverance in the belief that it was possible to discover the harmonic secrets of the universe was based on the conviction that God as the source of true knowledge had provided man with a divine spark as well as with a certain infallible method for the study of the cosmos. Ficino and Patrizi shared the idea that God knew everything immediately and perfectly, without any of the limiting habits of the human mind, which is inclined to think in relationships of cause and effect, and that man had to do his very best to acquire this divine but secret knowledge.

They were both convinced that God had imprinted all parts of His Creation with His harmonic seal, as a result of which the subject and object of knowledge corresponded with each other. As a result, this network of cosmic correspondences guaranteed an infallible method of studying the cosmos, man, and his music.

The ever-changing subject matter of the metaphor of the harmony of the spheres both reflected and set new goals for the disciplines of cosmology, philosophy of nature, music theory, and aesthetics. In my view, these new goals for the arts and sciences that emerged during the Renaissance can best be understood in the dual terms of increasing rationalization paired with the disenchantment of the Western world as analysed by Max Weber (1917, 155). According to Weber, simultaneously with the drive to reduce a purposeful and meaningful harmonious cosmos to a neutral, or 'untuned', universe in the field of cosmology, a drive to reduce artistic creativity to a calculable procedure based on comprehensible principles began to emerge in the realm of music during the Renaissance. Therefore, his theory that the process of disenchantment, that is, the 'untuning of the sky' (Hollander, 1961), extended beyond the scientific sphere to touch the very problem of the meaning of the world, brings into sharp focus what happened in the tradition of the harmony of the spheres in Italy in this period.

The growing tension between rational and expressive requirements of Western music, which according to Weber emerged during the sixteenth century (as noted in Braun 1994, 11), is indeed reflected clearly in the transformation of the doctrine of the harmony of the spheres. During the Renaissance a process started in which music was driven to attain, on the one hand, a maximum of logical order and rationality and, on the other, emotionality and an intensified, lyric, free, and creative expression. The melodies that had once enchanted the world, according to Weber (as noted in Chua 2001, 20–21), were modernized during the sixteenth century to become an efficient means of harmonic production. The 'untuning of the sky' which took place during the sixteenth century in the realm of cosmology was paired with the rationalization of music, during which the understanding of music shifted from melodic incantation to harmonic calculation. Against Weber's methodological backdrop, Ficino's and Patrizi's defence of monody and simple, expressive, harmonic chords can be interpreted as an attempt to re-enchant the world with world harmony and musical incantation, which they associated with Greek monodic music. Yet this project could make sense only within the narrative structure of a *prisca theologia*, in which the present was conceptualized in terms of a loss of eternal harmonic laws and perfect music.

In terms of Weber's theory of an increasing rationalization and disenchantment of the world, we can now conclude that during the Italian Renaissance

the metaphor of the harmony of the spheres worked interactively with the subject of cosmic order and music theory in two entirely different ways. It inspired philosophers of nature and music to look for a deeper, more harmonious reality than that revealed to the senses. In addition, it made finding out the mathematical structure of this harmonic world the goal of scientific enquiry. In this ongoing enquiry, the view of what nature and music were changed drastically, yet by the continuous use of the same metaphor of world harmony, affinities between traditional and innovative sets of ideas associated with the metaphor were evoked. This evocation strengthened the belief in the existence of eternal truths about the world. By using the age-old metaphor of the harmony of the spheres, Renaissance music could be charged with deep cosmic and emotional meaning to create a powerful antidote against the disenchantment of the world.

In sum, the research agenda that drove the transformation that took place in theories of cosmic harmony during the Italian Renaissance had been set by 1496, the year in which the edition of Ficino's *Timaeus* commentary used in this book was published. By 1591, the year in which Patrizi's *Nova philosophia* was published for the first time, the field was recognizably different: writings on cosmology and natural philosophy began to treat different problems and address different questions and to do so using methods and terms based on the field's redefinition in the late sixteenth century. A parallel development manifested itself in the discipline of music theory. During the course of the debates on world harmony, many of the common definitions and concepts were stretched, altered, and creatively re-invented. At the end of this creative interpretative journey, cosmology and music theory no longer employed each other's concepts to sustain their core beliefs.

The restatement of the Pythagorean and Platonic notion of world harmony in the cosmological and musical scholarship of the Italian Renaissance appears to have been the opposite of a creative or intellectual impasse. On the contrary, the very ingenuity and creativity with which so many interpretative tools and methods were combined by Ficino and Patrizi transformed the doctrine of the harmony of the spheres. The analysis in this book has shown that we must conclude that the degree of change in Pythagorean and Platonic harmonic theory is difficult to overlook. By 1600, the Renaissance questions and debates about cosmic order were still in full swing, and continued to be so until far into the seventeenth century. Even if the questions and debates about music theory seemed to have been successfully resolved by 1600, these very solutions were a point of departure for new scholarship in the arts as well as the sciences.

This is seen very clearly in the reception of Ficino's and Patrizi's interpretations of the doctrine of the harmony of the spheres. As I have discussed at

1.4 (*Methodology*), Weber juxtaposed an ancient enchanted musical culture with a modern disenchanted musical culture and attributed to the Renaissance a pivotal role in transforming the former into the latter. Based on Weber, I have argued in this book that during the Italian Renaissance the aesthetic realm emancipated itself from magical, religious, and scientific thinking, as a result of which music had to be re-enchanted with a new form of secular religion or magic in order to preserve its cosmological range and deep meaning. Ficino's and Patrizi's imaginative attempts to use the Pythagorean theory of world harmony for this purpose were adopted by new generations of musical scholars. If, moreover, we realize that nowadays many music lovers still use expressions such as 'being in the seventh heaven' to put their experience with great music into words, we can only conclude that hidden in our everyday use of language, Ficino's and Patrizi's ideas about world harmony live on.

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